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"Dig In."

A MILLION willing American soldiers are learning to "dig in." Thus ground gained is held. To those at home comes also the bugle call, "Dig in!" Bank accounts, investments, credits, small savings, "dig in!" Swiftly, generously done, this will make the Third Liberty Loan another great advance held by a rampart impregnable.

A PRUSSIAN RUBBER TRUST.

CERTAIN industries in Germany, such as glass manufacturers, have not only been taken over completely by the government but have been amalgamated into one great company. This controls the manufacture of goods and the selling, both wholesale and retail. It is also definitely understood that this consolidation will continue after the war.

Of the three hundred-odd rubber factories in Germany none are to-day making rubber goods except for war work. It is also a good guess that they have been practically taken over by the government, and a probability that, at the end of the war, they will be found to be very thoroughly consolidated into one great concern. With German rubber manufacture and selling under one head, with cheap labor and generous subsidies, the non-German rubber manufacturer, tariff or no tariff, will face competition of the worst sort. More than this, appreciating the world-prejudice that will exist for things Teutonic, there is this plan afoot—German-made goods will be put upon the market with labels and trade-marks of other countries. Thus there will be Swiss, Norwegian, Dutch and other brands, against which the world has no prejudice, but which will be actually German. This is the declared Teutonic program.

To secure the markets of South America, or indeed the rich markets of the United States, no price will be too low, no effort spared. In other words, it will be unfair competition of the sort that previous to the war put the American dye-makers out of business. It will also be on a large scale and carried on with patient tenacity. One more reason why we should win the war so that we may compete with the German rubber manufacturer rather than a Prussian rubber trust.

THE RUBBER STAMP AND THE THRIFT STAMP.

THE Thrift Stamp appeals to all as something that every man, woman and child in the United States can have a part in. Its creation was a bit of financial genius. It also lends itself to all sorts of simple and effective publicity that the more dignified governmental investments cannot use. For example, rubber stamps with the legend,

A THRIFT STAMP A DAY
KEEPS THE KAISER AWAY,

can be applied almost anywhere and frankly appeal to the patriotic. To the thrifty, we will not say stingy, for no Americans are penurious to-day, there is:

THRIVE BY THRIFT
BUY WAR SAVING STAMPS,

which is alliterative, terse and convincing.

AS TO RESTRICTED OUTPUT OF RUBBER.

THE Rubber Growers' Association has done much for planter and for manufacturer. Its leaders are practical, patriotic and of broad vision, but when they attempt to raise prices by curtailing production, they are bound in the long run to fail.

Their perennial panics anent overproduction are perhaps natural in the light of past profits, but have evolved no sound scheme as a remedy. The reason is, overproduction has not been in sight. A pause in production will of course bring higher prices and better profits. It will also stimulate South and Central America, Africa and all of the wild "rubber reservoirs" to get their share of the extra money. But more important will be the stimulus which it will give to rub-

ber planting in regions outside of Malaya, British Borneo and Ceylon. From an American standpoint, nothing could be more desirable than such a course. It would certainly result in an added interest in Philippine planting and it might bring about cultural success in some of the lesser producers adapted to the waste lands in the southern part of the United States.

If memory serves us right, but a few short years ago, urged by the nightmare of overproduction, the Rubber Growers' Association bought much rubber and donated floor coverings for certain hospitals. Then, too, there was the offer of prizes for rubber paving to use up the surplus. Somebody won a prize, but asphalt, not rubber, is still king of the road.

In the meantime, the automobile, without the stimulus of prizes or association manipulation, used rubber by the thousand tons because there was the need. So, too, the high price of leather brought in the rubber sole by the million pairs.

Natural, not artificial needs are what will take care of the surplus rubber, and the law of supply and demand will fix the price.

AN INSTITUTE FOR THE HISTORY OF SCIENCE.

SUCH an institution as was outlined by George Sarton of Harvard University, in "Science," for March 23, 1917, with the approval of nearly one hundred of our foremost scholars, should require but little argument in its favor. The crying need of some official organization dedicated to the historical study of that which is for the greatest common good of all mankind must be apparent to every thinking person, and should receive the hearty support of all who appreciate the desirability of perfecting the patent system. The question is rather where it shall be located to serve its purpose best; and that question has been conclusively answered in "Science" for June 22, 1917, by Bert Russell, Assistant Examiner, U. S. Patent Office. Mr. Russell points out that the resources of precisely such an institution are indispensable to the full performance of its duties by the Patent Office, and that the resources of that office, inadequate as they now are, should in turn be at the disposal of the proposed institute, for the attainment of its separate purposes. A most persuasive argument is then presented for its location in the national capital within reach of the Patent Office, the Smithsonian Institution, the Bureau of Standards, the Bureau of Mines, the Department of Agriculture, the Geological Survey, the Medical Museum, the Carnegie Museum and the Library of Congress, so that each may derive benefit from it, and as its assistance to the nation becomes obvious, Federal aid may be secured for its support. Science is essentially cumulative and the facilitation of prompt, impartial and reliable judgments by the proposed institute upon all questions of novelty arising in connection with the patent laws would aid greatly in placing the administration of such laws upon a secure, scientific foundation.

THE ZONE SYSTEM—A SUGGESTION.

THE postal zone system, although a manifest burden to both publisher and reader, appeals to certain legislative minds as not only original but eminently fair. To them is submitted a new, original, and fair zone system for railroad fares. To begin with, it costs the railroad more in fuel and wear and tear to carry a 200-pound man than it does a 100-pound one. The difference in weights of such individuals can be quite accurately gaged by their circumference. It is therefore suggested that the traveling public be ticketed in accordance with their abdominal measurements, thus: 30 inches waist measure and under, two cents a mile; 40 inches, three cents a mile; 50 inches and over, four cents a mile. This to take effect on the first of July, 1918. For 1919, the price in the second and third zones to be increased to four and five cents a mile. In 1920, the price in zones two and three to be increased to four and six cents a mile. This to be tacked on at the last moment, in committee, as an amendment to any law other than railroad, say finance, aviation or food.

The value of such a law in placing a subtle and undodgable tax upon alien enemies of German extraction is apparent. It would also cause plutocrats and high livers to pay for the avoirdupois gained at the expense of the poor working man. Certain portly Republicans, also, as ex-Presidents Taft and Roosevelt, would at last be brought to book and forced to support a Democratic administration.

SAVING CARGO SPACE IS AS VITAL AS BUILDING SHIPS. By baling plantation rubber The B. F. Goodrich Co. saves twenty-five per cent in bulk and twenty per cent in weight. Full details of the process have been given to The Rubber Association of America, Inc., and one hundred baling presses are on the way to Singapore. This is the sort of patriotism that will win the war.

THE DEATH OF SIR HENRY A. BLAKE, CLOSELY FOLlowed by that of A. Staines Manders, comes as a shock to thousands the world over. Serving respectively as president and organizing manager of the International Rubber Expositions, they accomplished much for the industry. Distinguished as organizers and industrial publicists of rare ability, their loss is deeply felt, their passing sincerely mourned.

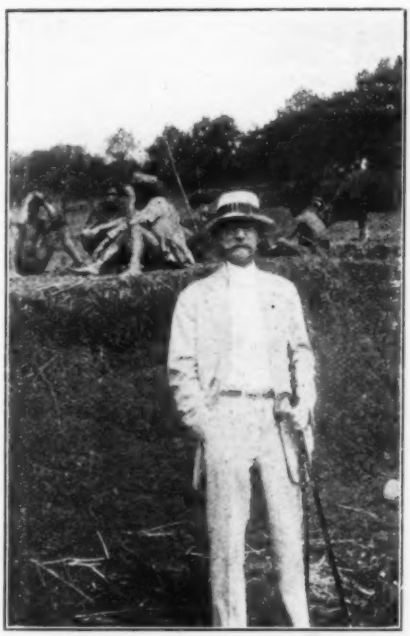
A BILL NOW PENDING IN THE BRITISH PARLIAMENT, IF passed, will render valueless many American trademarks now registered in England. Its main feature deals with the popularity, really the value, of the trade-mark. Thus, in the case of the word "Keds." If the public take to that name so that tennis shoes generally, by whomsoever made, are called "Keds," the trade-mark becomes void.

What I Saw In the Philippines—X.

By the Editor of The India Rubber World.

Growing Interest in Rubber—Some of the Active Forces for Good—A. W. Prautch on Hevea—The Bureau of Agriculture Friendly to Rubber Culture—A Word About Philippine Rubber Trees—Manila, the Fascinating—Baguio, the Beautiful—On the Colusa—Submarine Rumors—Honolulu and Home.

THAT interest in the Philippines is growing apace is proved by the letters that are constantly coming to the writer asking for information, chiefly for names of those in the islands who are in a position to give information. There are many who are full of enthusiasm concerning the future of the Philippines and who are enormously gratified that the people "back home" are beginning to wake up to their opportunities. I have already mentioned Governor Frank C. Carpenter, of Mindanao, and if I have not done so before, I should have spoken of Dr. Fisher, the alert head of the Bureau of Forestry. They are more than pleased to point those really interested toward the goal of their land or planting operations.



THE WRITER WITH AN IGORROTE BACKGROUND.

In addition to governors and heads of departments, there is the president of the Manila Merchants' Association, Harold M. Pitt. A business man, enthusiastic, vital, companionable, a forceful writer, with a wealth of Philippine statistics at his tongue's end, doing the work from sheer love of it, he has been and is one of the most valuable of the island's units.

Add to the above the Bureau of Agriculture of the Philippines and one is sure of attention and, if advice is followed, cannot go far wrong. Speaking of that hard-worked body, O. W. Barrett's circular No. 3 on "Cultural Directions for Using Para Rubber" tells the whole story, so that he who plants may read.

One of the most practical things done by the Bureau of Agriculture some seven or eight years ago was the sending of Mr. A. W. Prautch to the Malay States to investigate *Hevea* planting. Upon his return, Mr. Prautch made an official report to the Department, spoke at length before the Manila Merchants' Association, and had the whole story, with illustrations, published in a leading Manila paper.

For some reason the story did not jibe with the prejudices of some in Manila and a newspaper controversy ensued between certain anonymous writers and Mr. Prautch.

For example, Mr. Anonymous wrote: "Given the conditions in the Philippines, it is not likely that rubber growing on a large scale will benefit the first investors; high salaries, scarcity of labor, want of experience, are against it."

This was followed by absurd figures and conclusions that were absolutely without basis in fact.

Mr. Prautch naturally controverted the statements and did it very thoroughly.

The fact remained, however, that, except in the case of a very few, the man who condemned rubber planting and who was patently ignorant of it, was the most convincing. Reading over the matter after the lapse of seven years and in the light of personal knowledge, it is a most annoying state of affairs, but such things were, nevertheless. This, then, is an added reason for the long-time lack of interest in *Hevea* planting in the Philippine Islands.

There has been a widespread feeling that the Bureau of Agriculture of the Philippines was not in favor of rubber growing in the islands—indeed, that certain individuals had been advised

THE ZIG-ZAG BENGUET ROAD TO BAGUIO.

WONDERFUL RICE FIELD TERRACING OF IFUGAOS.

against it. The following statement by the Bureau, published in the "Philippine Agricultural Review," December, 1910, page 688, would seem to dispose effectually of this belief:

This Bureau has a lot of fine Para rubber trees growing in Manila, already at the bearing age and tapped. The distribution of Para seeds in the ordinary way is out of the question as they must be imported and have very poor keeping qualities. The seeds imported have been germinated and the young trees distributed. These will in time become central seed supplies wherever growing.

It is hoped that the enthusiasm now being shown in rubber will continue and that private enterprise will soon establish a large number of plantations in these islands where conditions unquestionably exist that will result in successful rubber production.

And at this moment comes an inquiry concerning native rubber producers in the Philippines. There are certain vines at present neither very plentiful nor valuable. They are found in Mindoro and Mindanao, and in this last-named island are tapped only that the latex may be used to swell the bulk of the more valuable gutta percha latex. These vines, the *Chonemorpha elastica* Merr. and the *Parameria philippinensis* Radk., may have a future when vine cultivation is a success, but at present they are of no practical value. Gutta percha is, as all know, found in the Southern islands, is gathered, and finds its way to Singapore with the rest of the gutta product in this part of the world.

Manila is fascinating. It is also hot, to my notion hotter than the cities of the Southern islands. With a splendid tropical hotel, and all creature comforts not often found so close to the equator, one does very well, however.

The city is a curious mixture of Spanish, Tagalog and American, from one end to the other. Streets with the old, native names or modern ones, such as Singalong Taft; Chinese shops and American emporiums; ancient walls, modern boulevards, cathedrals and baseball grounds; horses, automobiles and carabao carts. It is the natural distributing center for the whole East, a market-place for 800,000 neighbors. No wonder Germany wanted it and was willing to affront us to get it. Nor should we forget that England held them off—else—

The beginning and end of a trip to the Philippines is the city of Manila. To the student of conditions it is at once evident that here is a wonderfully prosperous community, not alone of foreigners, but of natives as well. Any of the latter desiring work can find it in plenty. As for wages, where they formerly received twenty cents a day, they now get fifty cents gold, while expert workers in lace make as high as two and three dollars a day. To one who is familiar with Spanish-American countries, Manila is a delight. *Si* and *gracias* come naturally to the lips and long-forgotten phrases crop up without effort. Yet there is one thing lacking, the vigorous Central American oaths are absent; even *caramba* is rarely heard.

A. W. Prautch Illustrating Tapping Methods.

With the American occupation came good roads (and they are good) stretching for miles in many directions. After one tires of city sights and turns to motor trips through native villages, by big rice and cane fields, seeing hundreds of friendly natives, well clad and prosperous, there comes the appreciation of what America has done for this people and one is proud of it.

For a longer trip there is the boat ride up the Pasig river across the Laguna to Los Baños. Here is an experiment station which has done something with rubber and much with other island products of infinite variety.

The most thrilling ride is that to Baguio, however. The visitor goes by motor or by rail about 150 miles north from Manila to Mangaldan. To Baguio itself is a motor trip from the sea level

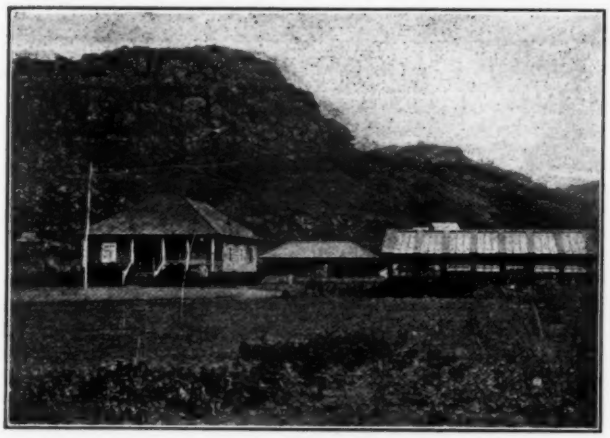
Pasig River, Manila.

up a most marvellous zig-zag mountain road until a climb of some 5,000 feet is accomplished. Here among the pines, in an absolutely temperate climate, is found a good hotel, golf club, livery stables, garages, schools and churches—an oasis in the desert of summer heat, a safe, comfortable paradise, right in the stronghold of the once bitterly hostile Igorrotes.

When one leaves the Philippines, particularly after long residence there, friends and business associates always get together for a *disipadida*. This is in brief a very jolly farewell feast, sometimes lasting for hours and terminating in hilarious visits to the departing ship, which continue until she leaves the pier, or if lying out in the harbor, the *disipadidationists* charter tugs, deck them with bunting, annex a band and circle the ship, singing, shouting last messages and in every way giving them a gorgeous "send off."

When we boarded the *Colusa* swinging at anchor out in midchannel, there were a half dozen groups of joyous ones to bid us and others *bon voyage*, and it was very, very pleasant. Then as night fell we weighed anchor and slowly steamed out of the bay.

Instead of taking the usual course by Formosa and northward, we went south for a day and two nights to the island of Cebu, where we took in a thousand tons of coconut oil at the plant of the Visayan Refining Co., Dean Worcester's plant. From there we steamed north and east until, clearing the San Bernardino Straits, we really began our homeward journey. It was no secret that we had barely enough fuel oil to take us to San Francisco if the weather was good. But it wasn't. For 13 days we faced a half-gale, and made on an average but a little over 200 miles a day. The big freighter, with her hold full of hemp and her tanks



View of the Baguio Experiment Station.

of oil, was fairly steady. Most of the passengers were good sailors and deck games went on as if the sea were smooth. Just as everything was getting monotonous and we were beginning to grumble because our wireless man got in no news, the Captain showed a radio ordering us immediately to discontinue sending records of our position to other vessels or to ports. This caused a lot of speculation. Then came another order that we report the presence and position of any suspicious appearing vessel, coupled with the information that German submarines were operating in the Pacific. As a whole the passengers took it pretty well. A further cause for excitement was the appearance of the whole crew on the upper deck to protest against their food. a huge dish of meat being offered as exhibit No. 1. The Captain tasted and decided that it was good, but the man carrying it, as soon as he was out of sight of the commander, pitched dish and all into the sea. This resulted in putting the crew upon the legal ration, not as full or as good as what they had been getting.

Sailing due east, even on a slow boat, has a decided disadvantage in the matter of getting up in the morning. It is this. The clock is set ahead at least half an hour a day. Thus, while one begins the voyage by getting up to breakfast say at seven o'clock, by the time Honolulu is reached, although clock and sun still say

Coconuts and Rubber.

seven when the gong is sounded, it is really one or two in the morning, which is confusing. Besides, if one continued to go east there would be the certainty of overtaking a second seven o'clock and the embarrassment of two breakfasts.

"Steamer on the port bow, sir," said the quartermaster to the Captain, and we all got out our glasses. It was but a faint column of smoke to us and soon disappeared, but gave all a thrill. An additional excitement was afforded when she refused to respond to our wireless messages. Really the air of suppressed and unsuppressed excitement varied the monotony of the voyage. So many thought they saw lights at night. Then, too, there was the incident of the distant and heavy firing. It was a puzzle to all until one of the officers noted that it coincided exactly with the roll of the ship, and after search was found to be a cask that had worked loose and rolled against the iron sides of the ship, making a very realistic boom.

We decided to call at Honolulu simply because we were short of fuel oil,—not very short, as we had a surplus of some six hundred tons, but it was in the ship's double bottom and as the settling tank was used for coconut oil it was difficult to fuel the fires when the stores got low.

We sighted Honolulu shortly after midnight. Honolulu also sighted us as was shown by the search-lights that played about us every instant until dawn.

Landing at 9 a. m. I was just in time to catch Fred Waterhouse who was sailing that afternoon for Singapore. I also ran into the secretary of The Mansfield Tire & Rubber Co., who was back from a visit to the rubber plantations in the Middle East. He was full of a plan to build wooden merchant ships to transport rubber from that region, and for return cargoes to carry automobiles. Such ships would be worth their weight in gold to-day.

Para Rubber Tree, Manila.

Our oil was aboard shortly after noon and we started on for San Francisco. As far as could be learned there was no foundation for the submarine scare, but a German raider was passed by us without our knowing it. This was why Japanese and other boats came in from unusual directions, and why all ran without lights.

At nightfall the extinguishing of deck lights was continued and boat drill kept up. Some of the passengers packed huge handbags in case we had to take to the boats, bags that would be thrown overboard very promptly by the officer in charge. Others slept fully dressed, and a few worried openly and constantly. But we were not torpedoed, nor raided, and finally landed in San Francisco, where awaited us files of newspapers and real news concerning our entrance into the great war of which we knew only the bare fact.

PHILIPPINE IMPORTS OF AUTOMOBILE TIRES, 1914-15-16.

Tires imported from—	1914.	1915.	1916.
United States	$74,961	$291,234	$472,129
United Kingdom	6,244	795	.....
Belgium	83	24,117	4,656
France	32,914	.....	148
Germany	669	.....	.....
Switzerland	127	.....	.....
Totals	$114,998	$316,146	$476,933

War News of the Rubber Industry.

Third Liberty Loan—Supplying "Eyes for the Navy"—New York Publishers Behind the Liberty Loan—Tire Repair Men Wanted for the Air Service—United States Shipyard Volunteers in the Rubber Trade—Why Not Hard Rubber Buttons for the Army and Navy?—Rubber to Alleviate Suffering—Highways in 1918 to Cost $283,006,610—Special Helmet for War Photographers—Predicts 700,000 Trucks for Short Haul Freight—Rubber Workers Organize a War Service Union—Service Notes and Personals—Letters from the Front.

THIRD LIBERTY LOAN.

THE campaign for the third Liberty Loan will be opened April 6, the first anniversary of the declaration of a state of war between the United States and Germany. This date will forever be consecrated in American history and it is peculiarly appropriate that the second year of our participation in this war for justice and freedom should be celebrated with a nation-wide drive for another Liberty Loan.

On that day every American should pledge anew to his country his every available resource and resolve to make whatever sacrifice may be needed in the same gallant spirit that impels our brave sons in France and on the seas to risk their lives in America's sacred cause. But the heavy oversubscription of the first and second loans foretells the certain outcome of the third. Nor will the rubber industry fail to respond as generously as previously; committees are already making plans for the drive.

The first Liberty Loan represented somewhat more than the total amount of free investment capital in the United States, and some liquidation naturally resulted. The second loan caused heavy liquidation, yet our industries as a whole remained in unusually sound condition. Few, if any, have yet begun to feel the effects of the money which is being spent and will be spent to stimulate a production which will exceed anything America has ever known. We have begun to appreciate the extent and value of our resources, however, and have learned that our sound cash position is the basis for an amount of credit that has no limit, save what we wish to make it. Better still, as a nation we are learning the valuable lesson of thrift. Individual experiences of surprise at the amount it is possible to save are being shared by an ever-widening circle.

We may therefore look forward confidently to the loans that are to come with the determination to work cheerfully, to save splendidly and to further the cooperation between government and business to the end that our country's gigantic undertaking may be carried out efficiently, expeditiously and successfully.

SUPPLYING "EYES FOR THE NAVY."

The editor of THE INDIA RUBBER WORLD is in receipt of the following letter from the Navy Department:

Dear Sir:

Your prompt and patriotic response to the Navy's call for binoculars, telescopes, and spyglasses, is most appreciated. The glasses will be very useful in the prosecution of the naval operations until victory is won.

At the termination of the war, if possible, every effort will be made to return them to you, when it is hoped that you will feel compensated for any evidence of wear by the knowledge that you have supplied "Eyes for the Navy" during a very trying period.

On behalf of the Navy, I wish to thank you most heartily.

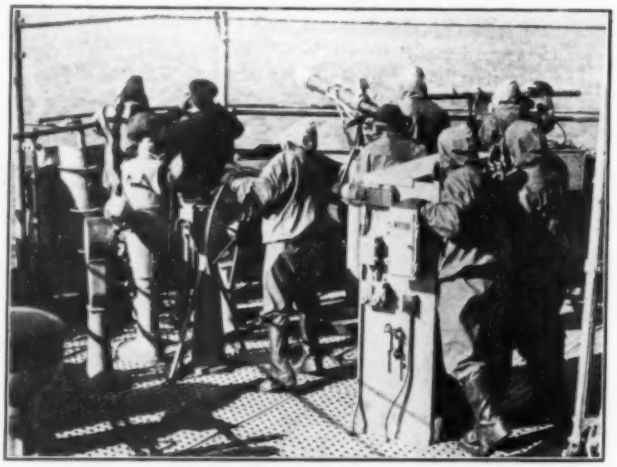
Very respectfully

FRANKLIN D. ROOSEVELT,
Assistant Secretary of the Navy.

This is not quoted in any spirit of self-gratulation but to draw attention to a special need of the Navy and one that many in the rubber trade can help to fill.

The fact that field-glasses and spyglasses were largely made abroad, and that the war stopped the production, has resulted in a serious shortage in this country. As soon as we entered the war, all glasses on sale were secured by the Government. The supply was so inadequate, however, that many U-boat chasers are practically without these very necessary instruments. Through Assistant Secretary Roosevelt, therefore, owners of glasses are requested to loan their glasses. That there are thousands in private hands in the United States goes without saying. Indeed the rubber trade alone must own its thousands. No doubt many, once the matter is brought to their attention, will gladly help out. If the reader of this is the possessor of binocular or spyglass and is willing to lend it to assist in safeguarding our transports, tag the glass with name and address and send by mail or express to the Hon. Franklin D. Roosevelt, Assistant Secretary of the Navy, Naval Observatory, Washington, District of Columbia.

As the Government cannot accept gifts, one dollar will be paid for glasses that can be used, and at the end of the war they will be returned, provided, of course, they are not captured by the enemy. In the latter contingency the donor may enlist and capture a pair equally good from any German staff officer.



(C) Paul Thompson, N. Y.

SAILORS OF THE AMERICAN FLEET DRESSED IN WATERPROOF SUITS AND HIGH LACE ARCTICS, WATCHING FOR ENEMY SUBMARINES.

At all events they are badly needed and needed now. Prompt and generous response will not only do a lot of practical good, but will warm the hearts of the splendid men who are doing perilous patrol duty and who will thus have additional evidence that the folks at home are standing back of them in the little as well as the big things.

NEW YORK BUSINESS PUBLISHERS BEHIND THE LIBERTY LOAN.

Few bodies of men have accomplished as much for effective aid to the Government as the New York Business Publishers' Association. It has helped to float the first two loans; has practically raised four special engineering regiments; has issued concrete suggestions to shippers to help solve the transportation problem, and has turned its hands to whatever useful thing needed publicity and material assistance. It has been glad to do these things and proud to have done them well. The Government has been appreciative, and business publishers have need of an appreciative Government.

At the regular monthly meeting and dinner, held at the Automobile Club of America, March 4, 1918, a plan of campaign was

mapped out for joining forces with the Liberty Loan Committee in the greatest drive for money in the history of this or any other country. Will Irwin, Roy Soule, Arthur Baldwin and Charles A. Hirschberg were the speakers of the evening, and the enthusiasm of all present shows that New York business papers are lined up as a unit for the drive.

TIRE REPAIR MEN WANTED FOR THE AIR SERVICE.

Vulcanizers are listed among the 10,000 skilled workers in various lines wanted at once by the Aviation Section of the Signal Corps to fill an immediate need, and the present call may be regarded as a precursor of other calls to follow as the air service is built up. Therefore, let every man capable of helping to meet this emergency consider seriously whether his duty lies in his present position or with this supporting arm of our airplane fighting forces so vital in winning the war.

Men registered in the draft may be inducted into this service by applying to their local draft board. Men not registered may enlist at any recruiting office. Further information may be had by applying to the Air Division, Personnel Department, Washington, District of Columbia. In either case they will be sent to San Antonio, Texas, for segregation by trades followed by a brief course of instruction at the flying fields or at various factories and organized into squadrons mostly for service over-seas.

UNITED STATES SHIPYARD VOLUNTEERS IN THE RUBBER TRADE.

Rubber factories, agencies and stores have already furnished a host of men for active fighting, a body of volunteers second to none. With like patriotism they are now doing their utmost to swell the ranks of the shipyard volunteers; and the need is great, the greatest the country has faced.

Thomas J. Dwyer, with the employment department of The Fisk Rubber Co., Chicopee Falls, Massachusetts, is urging tradesmen, especially machinists and carpenters, to enroll for the public service reserve of shipyard workers. The object is to line up as many workers as possible so that they will be ready for service when called. Those who respond are supposed to be ready within 30 days to give up their present positions to go to work in the shipbuilding yards of the Government, although enrollment does not mean compulsory service. The wages offered compare favorably with the average scale for the different trades.

The following is a list of the kinds of workers most needed in shipbuilding:

The Badge of Honor Given to Shipyard Volunteers.

Acetylene and electrical welders, asbestos workers, blacksmiths, angle-smiths, drop-forge men, flange turners, furnace men; boiler makers, riveters, reamers; carpenters, ship carpenters, dock builders; chippers and calkers; electrical workers, electricians, wiremen, crane operators; foundry workers; laborers (all kinds); loftsmen, template makers, machinists and machine hands, (all sorts), helpers; painters, plumbers and pipe fitters; sheet metal workers and coppersmiths; shipfitters; structural iron workers, riveters, erectors, bolters up; cementers and crane men.

WHY NOT HARD RUBBER BUTTONS FOR THE ARMY AND NAVY?

The "Official Bulletin" states that the government demand for large quantities of buttons has led American manufacturers to attempt to purchase back the stocks of wholesalers and jobbers at the price asked the cutting-up trade in order to fill government requisitions promptly. The figures furnished by the Bureau of Foreign and Domestic Commerce show also that there has been a greater demand abroad for buttons made in this country. The exports of buttons and parts from the United States for the fiscal year ending June 30, 1917, amounted to $1,982,104, as compared with $1,902,556 in 1916 and $654,372 in 1914.

Buttons of metal, horn, or vegetable ivory, especially the larger sizes, 40 to 55 line, such as are used on overcoats, are now much wanted. The demand has not only absorbed the American product, but has apparently stimulated imports.

RUBBER TO ALLEVIATE SUFFERING.

Rubber goods fashioned with characteristic ingenuity are doing much to minimize the dangers, alleviate the sufferings and repair the ravages of modern warfare. The new American gas mask, for instance, is little short of a revelation to those who have

(C) Paul Thompson, N. Y.
Operating Room of the U. S. S. Mercy in Which Rubber Plays an Important Part.

seen and compared it with the makeshifts first resorted to in France. But trench warfare imposes dangers resulting from exposure to the elements and standing water which would be feared only a little less than the worst enemy offensive were it not for rubber clothing and footwear.

In hospitals the modern method of irrigating wounds by means of perforated rubber tubing has saved thousands of lives, while syringes, water bottles, ice bags, water beds, air pillows, bulb atomizers, hard rubber instruments, gloves and finger cots, surgical bandages, hospital blankets and aprons, bed pans and gas bags for anesthetics, etc.—all of rubber—have every one helped to save life or relieve suffering.

Rubber is also working wonders in repairing losses occasioned by serious facial wounds. In this direction the accomplishments of skilled specialists are little short of miraculous. Any description of notable instances would be inadequate without before and after illustrations, and these are to be found by the score in the medical and dental press.

HIGHWAYS IN 1918 TO COST $263,096,610.

Combined forces of the Government, States and Counties will spend for highway improvement in 1918 the amazing total of $263,096,610. This is the announcement contained in the first detailed survey of the nation's road-building plan issued by officials of the touring bureau of The B. F. Goodrich Rubber Co., who have been in daily contact for two months with highway commissioners of the states.

While this sum seems staggering, eclipsing by 82 per cent the expenditures of any previous year and in money figures by $118,797,750 that of 1917, road officials of the Government and States said it represented merely a "drop in the bucket" of what should be spent before the war was concluded. They

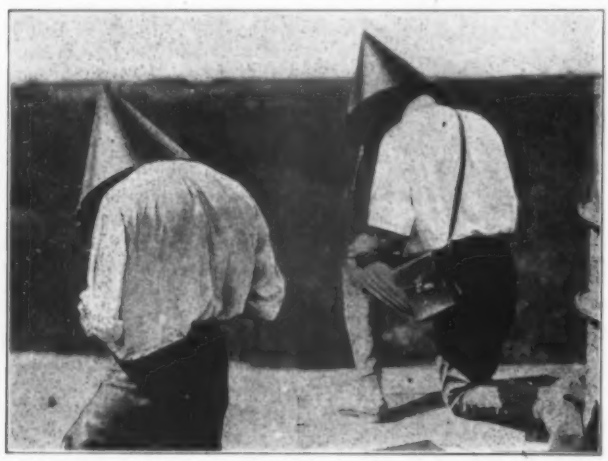
admit the railroad situation has made imperative lavish road appropriations—the total of this year is little better than half what Secretary McAdoo has announced as necessary for the upbuilding of the overtaxed American railroad system. Calculations by government officials are that with good highways, motor trucks and motor vehicles are capable of carrying approximately 200 per cent more freight than the railroads. In these same calculations they estimate the value of our highways at $6,240,000,000.

Data supplied the Goodrich touring officials disclose that the productive possibilities of communities were considered above all else in determining the sums to be allotted for road improvement. Thus the South and Middle West appropriations exceed those of other regions by many millions. Texas, for instance, leads all others with contemplated highway development, announcing the amazing assignment of $25,000,000 for road improvement. Last year it spent $5,000,000.

Ohio, Pennsylvania and Michigan, which play a large part in any highway program, owing to the fact that all government truck caravans traverse their confines, are concentrating on those lanes used most by the big industries. Traffic between the huge rubber and steel cities of Ohio and Pennsylvania and shipping points will be uninterrupted in winter as well as summer.

SPECIAL HELMET FOR WAR PHOTOGRAPHERS.

Of the many weird devices and articles of equipment developed during the war none is more peculiar than the funnel-shaped steel helmet which has been adopted almost universally by the



(C) Underwood & Underwood, N. Y.

Conical Steel Helmets to Protect Photographers on the Battlefield.

armies of Europe for their photographers engaged in making the pictorial history of the world's greatest armed conflict. It comes far down over the eyes and serves to protect the head and shoulders from bullets and shell splinters. A rubber cushion is provided inside to mitigate the shock.

PREDICTS 700,000 TRUCKS FOR SHORT HAUL FREIGHT.

Solution of our befogged transportation problem rests not only in the addition of the motor truck to our land shipping facilities, but in the utmost cooperation between the motor truck and the railroad, states W. O. Rutherford, general sales manager of the The B. F. Goodrich Rubber Co., Akron, Ohio. Economy, he points out, comes through magnificent cooperation of public and private utilities, and to put the truck on a competitive basis with the steam road rather than cooperating with it was to chance waste of money and time. Says he:

Let the railroads take care of the long hauls and the motor truck of the short hauls. The soundness of this plan is substantiated by the government rule in Britain to-day—motor trucks carrying all freight within a twenty-five mile zone and trains everything beyond.

There is a class of freight business which the railroad cannot handle well. It is the class which clogs its terminals. Imagine a concern, located twenty miles outside of a large city, sending goods either by freight or by express to a customer located ten miles out of the city on another railroad. Here are two short hauls, one for each railroad. The consignment goes through two terminals and altogether is handled ten or a dozen times before it reaches its destination.

The motor truck, on the other hand, is direct, requires no terminal or transfer depot, and only two handlings, loading and unloading.

Mr. Rutherford predicts that 700,000 trucks will be in operation this year.

RUBBER WORKERS ORGANIZE A WAR SERVICE UNION.

The Jeannette War Service Union, of which Seneca G. Lewis, general manager of the Pennsylvania Rubber Co., Jeannette, Pennsylvania, is president, is raising a large fund to be devoted to various lines of patriotic work and particularly to the care of returned soldiers and sailors who may need assistance. The employes of the Pennsylvania Rubber Co. have been enrolled *en masse* and will contribute the sum of $18,168 a year in monthly payments. The company led with a monthly pledge of $400, Mr. Lewis signed for $50 monthly, and other officials gladly promised substantial sums. A house-to-house canvass of every citizen in Jeannette is being made, with excellent results, indicating an annual contribution exceeding $50,000.

Seneca G. Lewis.

This commendable undertaking exemplifies one of the many helps toward winning the war which only those at home can give, and puts Jeannette in the forefront as standing solidly behind the Government and our boys in France.

SERVICE NOTES AND PERSONALS.

Major H. Stuart Hotchkiss of the United States Signal corps has been ordered to a permanent station overseas.

While the Y. M. C. A., a great national organization, carries its splendid work into the cantonments of the American armies in training and to the fighting lines in France, such similar local organizations as the Boston Young Men's Christian Union have found worthy missions in their respective home cities, catering to the welfare of soldiers and sailors while on furlough. Through the United Service Club of the B. Y. M. C. U. and the Y. W. C. A. Hostess Rooms at The Union, over 5,000 men in service are weekly finding wholesome influences, congenial companions, enjoyable entertainment and many home privileges. Frank L. Locke, for several years superintendent of the Boston Rubber Shoe Co., Malden, Massachusetts, is now president of the B. Y. M. C. U.

Captain D. A. Wilcox, formerly in the development department of the United States Rubber Co., New York City, is now assistant property officer at Hoboken, New Jersey. Called into active service in the Quartermaster Corps in May, he was first

assigned to duty in recruiting in the general offices of the United States Rubber Co. for about a month. He was then transferred to the Army Transport Service and has made several trips to France, not without submarine incidents, on a cargo vessel carrying supplies to our troops overseas.

Loyall A. Osborne, of New York, vice-president of the Westinghouse Electric & Manufacturing Co. and chairman of the executive committee of the National Industrial Conference Board, has been appointed by the Secretary of Labor to membership during the war on the Industrial Peace Committee. This committee consists of five representatives of employers, five labor leaders, and two public men. Its purpose is to provide a definite labor program to obtain industrial peace, thus preventing interruption of industrial production vital to the winning of the war.

L. A. OSBORNE.

Robert L. Baird, vice-president of the Rubber Trading Co., New York City, has enlisted in Co. K, 23rd Regiment, National Guard, New York.

John J. Pell, of the 165th Regiment, United States Infantry, now "Somewhere in France" with the "Rainbow Division," is the brother of George E. Pell, of Pell & Dumont, New York City. Private Pell comes of a family of fighters, his father, grandfather, and maternal grandfather having won honorable records in army or navy.

LIEUTENANT E. J. WRIGHT.

H. J. Mulligan, of the Boston branch of the Mohawk Rubber Co., Akron, Ohio, has enlisted in the Canadian Army.

E. J. Wright, former senior scoutmaster of the Firestone Boy Scouts, has been made a first lieutenant in the United States Army. He is in the field artillery and at present is stationed "somewhere in the United States." Lieutenant Wright was especially active in the Scout work of the Firestone Tire & Rubber Co., Akron, Ohio, in addition to his duties in the development department.

Merle M. Dunbar, son of Wilmer Dunbar, Greensburg, Pennsylvania, is an ambulance driver in Mobile Hospital Unit L, of Pittsburgh, Pennsylvania, that recently sailed for service in France.

Ray Seymour, special bicycle and motorcycle salesman of the San Francisco branch of the United States Rubber Co., New York City, has enlisted in the Naval Reserve Flying Corps. For five years Mr. Seymour followed motorcycle racing and in 1912 was professional champion of the world. This experience should be of value in aviation.

The Springfield, Massachusetts, branch of the United States Rubber Co., New York City, is well represented in the service. Arthur Victory and Ralph Richmond, both in the navy, are taking a four months' course at the Harvard University Radio School. Fred Graves is a first-class yeoman at Charlestown Navy Yard. Arthur Quimby is at the Officers' Training School at Camp Devens. Hugh Alvord is training at Camp Dix, New Jersey, while Douglas Clark is "somewhere in France."

Captain Aubrey W. Vaughan, who has been on duty at the Quartermaster Depot, Boston, in charge of the inspection and manufacturing of rubber goods made throughout the New England States, has recently been transferred to the Quartermaster General's Office, Supplies and Equipment Division, Washington, District of Columbia, where he will be in charge of the manufacture and inspection of all waterproof clothing purchased throughout the entire country. Captain Vaughan has had considerable practical experience in the rubber industry, having been with the Boston Woven Hose & Rubber Co., Boston, and the B. & R. Rubber Co., now the Quabaug Rubber Co., North Brookfield, Massachusetts, for a number of years.

John W. Gauthier, manager of Department 36 of The B. F. Goodrich Co., in October last was appointed custodian of the new armory in Akron while the National Guard is serving in the Army. The appointment was made by the Adjutant-General of Ohio.

Charles Lenox Blodgett, youngest son of William L. Blodgett, who recently resigned as secretary of the Hamilton Rubber Co., Trenton, New Jersey, is in the aviation service. He recently married Miss Abbey J. Southard, also of Trenton, at Macon, Georgia, where he took the course at the Collegiate Balloon School and was made a pilot. He is now taking the technical course at Omaha, Nebraska, at the expiration of which he expects to receive a commission as lieutenant and go to France. Previous to his enlistment last December he was a junior at Yale.

C. L. BLODGETT.

Vernon Baldwin, son of S. H. Baldwin, St. Louis, Missouri, is a private in the 158th Aero Squadron and was on the unfortunate *Tuscania* at the time she was sunk. He was reported lost but has since sent word of his safe arrival in France. Previous to his enlistment on December 4 last, he was assistant manager of the South Side branch of the Fisk Rubber Co. of New York at St. Louis, Missouri. He was admitted to the flying corps because of his ability as a mechanic.

Hobart Decker, a former employe of the Goodyear Tire & Rubber Co., Akron, Ohio, has been reported captured by the Germans, with three companions, while on a scouting trip. He was one of the first American soldiers to reach the firing line in France, having gone over last November.

J. W. WALMSLEY.

J. W. Walmsley, son of Walter Walmsley, Oshawa, Ontario, Canada, after rising to the rank of sergeant, has been awarded the Military Medal and Bar for conspicuous gallantry. He enlisted in 1915 and trained at Stanley Barracks, Toronto, going overseas with Colonel Bick's battalion as armorer-corporal. After reaching England he gave up his stripes and went to France as a private with a Highland unit. He was formerly a tire finisher in the employ of the Goodyear Tire and Rubber Co., Bowmanville, Ontario, Canada.

A branch of the National Patriotic League is being organized among the female operatives of the National India Rubber Co., Bristol, Connecticut, comprising women who are pledged to aid the Government in a victorious ending of the war.

GERMANS ROB FRENCH OFFICERS OF RUBBER CLOTHING.

Hénri Galli, a member of the Chamber of Deputies for Paris, is credited with having revealed the latest phase of petty ill-treatment of French officers made prisoners by the Germans. It appears that no property belonging to these prisoners is safe from the rapacity of their captors. Every scrap of rubber in shoes, clothing, footballs, etc., is confiscated and sold, as well as most of their woolen underclothes and spare suits.

LETTERS FROM THE FRONT

The following letters from young Americans formerly in the rubber trade but now in service overseas, indicate the splendid spirit with which our boys are enduring the hardships and dangers of their task and actually getting some enjoyment and a lot of satisfaction out of the experience. The conclusion is that Uncle Sam provides well for his troops and is constantly improving matters.

WITH THE AMERICAN EXPEDITIONARY FORCES.

SOMEWHERE IN FRANCE.

DEAR ———:

At the present moment, I'm lying on my bunk beside the gentle light of a candle, that being our only means of illumination at the present time. We use this candle to get up by and go to bed with. We get up every morning at the same old time, 5:30. It's pretty dark at that hour these mornings and rather cold, too. This is one of the two letters I am allowed to write a week. This ruling has just taken place, as the battery censor has been overburdened with mail. I don't know whether you have received all my letters or not, as we have heard that a ship, probably carrying some of our mail, has been sunk.

Yesterday was one of the big days in the army—pay day. It was a pretty jolly crowd when they heard that old pay call, as a good many had been penniless for some time. We get paid in French money with one 10 per cent increase for foreign service. It amounts to 175½ francs. Sounds a good deal, doesn't it? Yes, and it is a good deal when you compare it with the Frenchman's pay. He receives something like five cents a day, they tell me; so we get as much in a month as he does in two years.

The first thing we did was "naturally" to get stocked up with "eats." We can get all the bread and jam we want now, and believe me, it does taste good. We no longer have our single battery mess line as we had at home. It is now three batteries to one mess kitchen, so you can perhaps imagine waiting in this line for the chow.

What disappointed a good many of us yesterday was to wake up and find we work Sundays the same as any other day in the week. I don't believe, though, this is always the case. We're over here, though, to lick the Germans.

We've got a pretty snappy outfit here, if I do say it. The discipline in this battery has been pretty stiff from the start and it now shows that it surely counts for something in the end. Our top sergeant can give a fellow a "bawling out" that he does not forget in a hurry. I've had mine like the rest of them, but I've deserved it, so there is no hard feeling against anyone. I'll say this much, if present indications count for anything, some Huns are going to catch it in the neck if the time ever comes for this regiment to do its bit. Well, I haven't got very far in the last few lines, just a little to let you know how we feel about it.

I should like some tooth paste, and some newspaper clippings, such as high school, football or track news. I am in excellent health, feeling great, so don't worry even a little bit. We have Teddy, the dog, with us, brought all the way from the States. He's a great pup, but gets the Captain's "goat" by his barking.

Au revoir, ———.

GLAD TO BE DOING HIS BIT.

SOMEWHERE IN FRANCE.

DEAR ———:

Just a few lines again to let you know I'm feeling fine and glad to be doing my bit for Uncle Sam and these French brothers of ours. We have recently moved to another camp where we are comfortably quartered in barracks. We are much better off now than formerly so far as comfort is concerned. We now have floors and regular mattresses to sleep on, and soon will have springs to go with them, so you see we're not so badly off after all. The food is very good. We have bacon and potatoes very often for breakfast and I'm right at home when there's bacon around. We have hard-tack quite frequently with our mess. We all used to think this meant something pretty tough, but really these biscuits are something everyone likes. We no longer get those nice cut slices of "windy" baker's bread as we did at home. It is now a good sized "hunk" of regular army bread. It is much darker and well cooked. When you get some jam on this, you've got something that tastes pretty good, believe me. The fellow that bunks beside me and I, bought a big can of strawberry jam besides a long loaf of French bread, and at night before turning in, we usually "get to it."

Since arriving in France, I have seen a good many German prisoners. They are a pretty rough-looking bunch, to say the least. They look practically the same as the pictures we see of them at home. Some of them have the most devilish look on their faces, as if they could easily do the hellish things said of them. The other sights I am witnessing, both places and people, look the same, only, of course, we are seeing a great many things we are not allowed to tell about. These French railroads, for one thing, will go down in history in my mind. You will hear all about them some day. The Y. M. C. A. is doing a great work over here. It furnishes us with paper and a place in which to write and enjoy ourselves during spare time. There is usually some kind of an entertainment every night, either a talk by some man or something of the kind, so if you hear anyone calling the Y. M. C. A. down, as I have in the past, you can mention these few things which they are now doing for us fellows so far from home. All are glad now to take advantage of it, so don't forget that.

There are all kinds of work to be done here. The days are pretty well taken up with various duties besides drilling. We have an officer in our battery, who was a Harvard football star. He is certainly a great man on calisthenics. It's a great life over here, but we do get homesick occasionally, especially when we don't get any news. We are anxious, of course, to know everything going on, no matter how small it may seem. You must remember we are in a rather difficult position to write much of anything, so you will have to excuse me if my letters are not very interesting.

Sincerely, ———.

A YANKEE RUBBER MAN SEES POSSIBILITIES IN FRENCH MUD.

SOMEWHERE IN FRANCE.

DEAR ———:

You ask me about rubber at the front? You know all that I do about trench boots and coats; as for hospital supplies, I don't know anything. That may come later, if some Boche gets me. This, however, I do know. There is a fortune for some live Yankee over here putting this sticky mud up in collapsible tubes and selling it for rubber cement. Of course, I have no viscosimeter and cannot give scientific data, but take my word, there is more stick to a cubic inch of this mud than any cement I ever saw. It would work on a spreader fine and make a friction that would fill the Bureau of Standards with joy. Shall I scrape off a few pounds from my person and ship it for analysis?

As ever, ———.

Factors Which Govern Tire Costs.

By A. K. Murray.

IN the early days of the pneumatic tire, there existed considerable discussion on what constituted the proper proportions of fabric and rubber to make a tire that would give the best results.

Some claimed that a tire made almost entirely of fabric with a very thin tread of rubber, or even with no tread at all, would give greater mileage and be less liable to puncture. Others declared that the best results could be obtained from a carcass of gum with just enough layers of fabric to eliminate danger of blowouts from proper air pressures.

Experience, only, has brought about what might be termed a standard formula; and while there are slight variations among manufacturers, an average taken from many formulas would divide the ingredients as shown in Fig. 1.

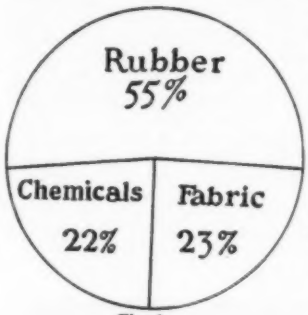


Fig. 1.

Approximate distribution of materials in gross weight of tire during 1917.

DISTRIBUTION OF COST ITEMS.

So many conditions enter into the distribution of cost in the manufacture of a tire that it becomes a problem to set any definite formula; at best it can be estimated only on the basis of the present cost of materials and labor. See Fig. 2.

It is interesting, however, to note the wide difference existing between the distribution of materials and that of cost items.

FABRIC.

Fig. 1 shows that a tire is made of 23 per cent fabric, which item in Fig. 2 represents about 50 per cent of the total cost to build it. While this was true in April of last year, fabric has since advanced another 50 per cent over the price at that time, which indicates that the tire manufacturers are now paying 200 per cent more for this one item than they were in January, 1910, just eight years ago. See Fig. 3.

While this condition has been hard to contend with among those who were forced to pay the higher price, there were some who at times found it impossible to secure Sea Island stock at any price. The writer knows of some cases where the factory would have been forced to shut down temporarily had it not been for the good grace of a friendly competitor fortunate enough to have a stock in hand and willing to lend the necessary supply. Others, more fortunate, were able to buy, but at a price exceeding the 200 per cent mark.

No larger single item of expense enters into the building of a tire than that of fabric. Nine months ago fabric represented less than 50 per cent of the cost of a tire as shown in Fig. 2. To-day it represents in most cases more than 55 per cent, in spite of the fact that all other cost items have also advanced, but to a more moderate degree.

LABOR AND FACTORY COSTS.

Labor and factory expenses are the most variable items in the cost of building a tire. This is due to local and internal factory conditions. Low-priced labor with high factory efficiency can make this portion one of the least to be considered, while high-priced labor combined with low factory efficiency might make it amount to as much as 40 per cent of the total outlay.

This fluctuation can alter to almost any dimension the estimates shown in Fig. 2. In trying to average labor costs and factory efficiency to form a basis on which to work, it has been found that labor is now from 45 to 50 per cent higher than in January of 1910, as shown in Fig. 3.

Fig. 2.

Approximate distribution of cost items in a finished tire of January, 1917. Factory cost is used as basis. Marketing and transportation expense not included. Shaded lines allow a variation of 5 per cent in either direction.

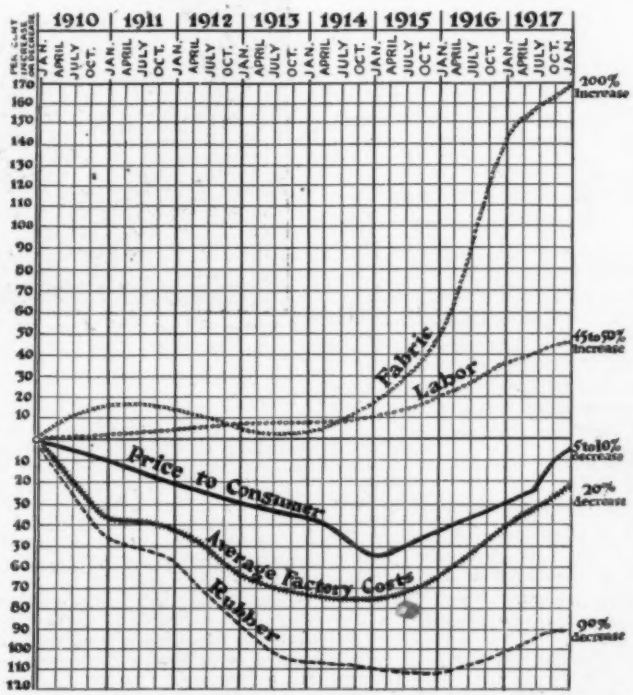


Fig. 3.

Relative changes during the last seven years in the price of tires with that of the materials from which they are made.

The increased cost of labor and fabric would ordinarily force an equal increase in the price of the finished product to the consumer, but contrary to this natural deduction we find that the present price of tires to the consumer is from 5 per cent to 10 per cent below that of January, 1910.

The answer to this apparent incongruity is the decrease in average factory costs, also that of rubber. Modern machinery combined with greater factory efficiency has reduced the former sufficiently to offset the increase in labor until recently, when, as shown in Fig. 3, we find the factory outlay climbing, but still 20 per cent less than eight years ago.

RUBBER.

The large production of plantation rubber during the past eight years has reduced the price to a point where it has long ceased to be a barometer in forecasting production costs, and it is chiefly

due to the low price of this commodity and the fact that it constitutes about 55 per cent of the bulk of a tire, that the manufacturer is able to sell his product to-day for less than he did eight years ago when fabric cost him only one-third of what it does at present. It is safe to say that the price of tires to the consumer would long ago have become prohibitive, had the selling price increase since January, 1910, been commensurate with the advanced cost of labor and fabric during that period.

COMPARATIVE FLUCTUATIONS.

In Fig. 3 is shown a graph, the object of which is to compare the relative fluctuations of tire price to consumer with those of the important cost items in its manufacture during the last eight years. The price to consumer represents the average of six well-known makes of tires—two of which were high-, two medium- and two low-priced products. The average selling prices of a size 34 by 4 tire during this period are as follows:

1910	1911	1912	1913	1914	1915	1916	1917
$47.63	$41.63	$38.45	$34.71	$32.80	$25.87	$28.40	$38.56

A close study of Fig. 3 will show that every advance which the manufacturer has made in the cost of tires to consumer has been amply justified and it will be apparent to dealer and consumer that the present price is not exorbitant.

The manufacturer has without doubt delivered to the trade and to the consumer every price advantage that is possible, when the raw materials, labor and factory cost conditions are studied and understood.

S. A. E. SPECIFICATIONS FOR AIRPLANE TIRES.

From S. A. E. Bulletin Department.

THE specification for airplane tires as submitted is as follows:

GENERAL WEIGHTS AND DIMENSIONS—Airplane tires shall be free from defects and guaranteed as to material and workmanship. The tires must be of smooth cut. They should be branded with both the manufacturer's name and serial number and date of manufacture. The tires shall be branded with the metric sizes and rim size which they fit, as shown in the accompanying table. The tires shall be of clincher type and conform with the dimensions and weights shown in the table.

Size.	Rim.	Inflated Section Diameter. Maximum.	Inflated Section Diameter. Minimum.	Maximum Weight. Pounds.	Maximum Weight. Ounces.	Minimum Weight. Pounds.	Minimum Weight. Ounces.	Minimum Tread Thickness.	Maximum Side Wall Rubber.
700 x 75	W_1	3 1/16	2 7/8	5	5	4	11	1/16	1/32
700 x 100	Z_2	4 1/16	3 7/8	9	2	8	8	3/32	3/64
750 x 125	Z_3	5 1/16	4 7/8	11	2	10	4	3/32	3/64
800 x 150	Z_4	5 15/16	5 3/4	13	4	12	6	1/8	3/64

Enough compound must be put on the side wall to protect the fabric. The section diameters are to be measured at 50-pound inflation pressure. The weights of the tires given in the table do not include that of the flaps. The specific gravity of the tread stock shall not exceed 1.30.

The beads must be so designed as to fit properly rim contours designed in accordance with rim templates provided by the Tire & Rim Association.

The rims on which these tires are to be used must be inspected according to these templates and must bear the stamp of approval of the Tire & Rim Association. The brand must be put on at the final inspection after the rim is laced into the wheels.

The inside of the tire shall be properly painted in accordance with the standard practice of regular automobile-tire manufacturers.

CONSTRUCTION—Tires shall be constructed of two or more plies and of cords of best quality cotton, so that an equal number of plies run in each diagonal direction across the tire; or of a suitable number of fabric plies. When the former construction is used, the cords in any one layer must be separated from each other by a thin coat of rubber. Each ply shall be separated from each other ply by a thin skim coat of rubber.

The beads must be so constructed as to insure the inner tube against pinching. This may be accomplished by use of a flap cemented onto the bead by a suitable reinforcement on the under side of the inner tube.

PNEUMATIC TIRES FOR HEAVY TRUCKS.

ACCORDING to Paul W. Litchfield, vice-president of The Goodyear Tire & Rubber Co., Akron, Ohio, the progress of tire design during the last two years has shown that pneumatic tires are no longer limited in size to 4½ inches. He says:

This limit no longer stands if, instead of woven fabric, laminated cords without cross weave are used. These cords take the strains without undue fatigue and we now see our way clear to pass from 4½-inch cross-section to 12-inch cross-section as easily as we went from 1½-inch to 4½-inch. It is only a question of study to perfect the large pneumatics so that the truck can repeat the remarkable growth of the passenger car. Pneumatic tires up to 9-inch cross-section are now in successful commercial use on trucks and passenger buses. The speed of and the distance traveled by these vehicles have been increased and the upkeep costs reduced. The tire cost per mile may be higher than with solid tires, but this same is also true of passenger cars. A solid-tired touring car would have a tire mile cost of less than half that of one with pneumatics, but all other costs—fuel, upkeep and depreciation—would be higher.

From "The Journal of the S. A. E."

12-INCH CORD TRUCK TIRE ON REAR OF TRAILER.

The first trucks designed for solid tires were lighter than those in use to-day, but the vibration caused so much breaking of parts that they have been strengthened and reinforced repeatedly. This can all be saved by using pneumatics, permitting lighter chassis and bodies to carry heavier loads. Also the traction of large single pneumatics is much greater than that of solids so that the trucks can be operated in sand, mud and snow, where the solid-tired trucks would be stalled. The gasoline and oil consumption is much less when pneumatic tires are used.

The motor truck so far has only attempted to replace the horse in hauling merchandise because the solid tire has so limited its speed that it could not compete with any form of transportation requiring long hauls at higher speeds. When it can accomplish this, it so enlarges its field that it becomes a real competitor of the railroads.

"Rubber Machinery," Mr. Pearson's newest book, filled with valuable information for rubber manufacturers. Price, $6.

CONSERVATION OF SOLID TIRES.

WITH the Government demanding the bulk of the solid tire output for motor transports, it becomes increasingly urgent that owners of commercial vehicles, on whom the Government must rely to relieve the freight congestion and speed produce from the farm to the consumer, should commence at once a policy of tire conservation. Truck tire authorities assert that only with the utmost cooperation from truck owners will manufacturers be able to supply the Government with the 500,000 solid tires it will need to enter actual hostilities on a comprehensive scale.

In order to show truck owners how to get maximum service from their tires, manufacturers are sending out printed instructions. For example, The B. F. Goodrich Co., Akron, Ohio, has prepared an illustrated statement of the more common solid tire abuses, from which the following has been abstracted:

Overloading—In the desire to get the very most out of the motor truck the owner is apt to overplay his hand and overload his truck. The consequence is more disastrous to the tires than to any other part of the vehicle. Keep within the capacity of the truck. Below is a table of the carrying capacity that single and dual tires will bear:

SINGLES.

Width of Tire.	Height of Tire.	Width of Wheel.	Diameter of Wheel.	Carrying Capacity.
5 13/16	3¼	4¼	28 **30** 34 36	2,500
6 13/16	3¾	5¼	28 30 32 34 36	4,000
7 13/16	3¾	6¼	30 34	6,000

DUALS.

Nominal Size of Tire.	Width of Tire.	Height of Tire.	Width of Wheel.	Diameter of Wheel.	Carrying Capacity.
34 x 5 36 x 5 40 x 5 42 x 5	..... 11⅛	3¼	10	28 30 34 36	7,000
34 x 6 36 x 6 38 x 6 40 x 6 42 x 6	..... 13⅜	3¾	12	28 30 32 34 36	10,000
36 x 7 40 x 7	..... 15⅝	3¾	14	30 34	12,000

There is positively no remedy for a tire broken down from overloading. The reason is that the rubber has been compressed beyond the safe limit of elasticity. Little cracks occur and the deterioration commences. Once overloading a truck suffices to begin the destruction of the tire.

Overspeeding—Heat is as disastrous to solid tires as it is to inflated tires. Heat makes its appearance in overspeeding. When a pilot sends his truck, loaded or unloaded, pellmell over a smooth or rough road the heat that is generated within the tire, due to rapid displacement and road friction, is serious enough to cause a permanent injury. It does not take long for disintegration to take place.

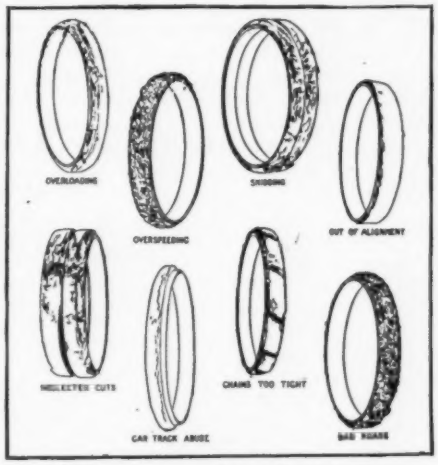
Skidding—Drivers should be brought to realize that trucks will stop more speedily if the brakes are applied gradually rather than quickly. Also they should be admonished against rapid turning of corners. Repeated skidding had worn to pieces the tire pictured in the illustration. If one brake takes hold before the other the tire is bound to skid. This develops a flat spot on the tread and the next time the same emergency arises this same spot is the sufferer, as the wheel will not skid until this one place on the tread has been reached.

Out of Alinement—When the front wheels of a truck are out of alinement the effect upon the tire is a continual friction. The wheel partly rolls and partly slides and the tread disappears quickly. If a driver notes a scaly appearance on the tire tread, he should remedy the wheel alinement immediately. Hard jolts cause this trouble.

Neglected Cuts—Cuts caused by driving over broken glass, etc., must not be ignored, as they widen continually. Tire cuts should be healed with cement or trimmed to lessen resistance.

Car Track Abuse—In large cities trucks are driven too much in trolley car tracks, with the result that one-half of the tire carries the load, while the other half is cut to pieces.

Chains Too Tight—All anti-skid devices have been found injurious to solid tires, but the least injurious is the loose chain. In the illustration the anti-skid contrivance has been of the permanent type and has eaten into the surface of the tire. Anti-skid devices should be used only when vitally necessary.



The Results of Solid Tire Abuse.

Bad Roads—While bad roads cannot be avoided, the driver who uses the bad road simply because it will cut off distance, risks permanent injury to his cushions. The tire illustrated is the exhibit of a concern whose driver specialized in driving over crushed stone, loose brick and other similar obstructions.

U. S. NAVY DEPARTMENT SPECIFICATIONS.

RUBBER—MOLDED, SHEET AND STRIP.

GENERAL SPECIFICATIONS.

1. "General Specifications for Inspection of Rubber Material" and "General Specifications for Inspection of Material," issued by the Navy Department, in effect at date of opening of bids, shall form part of these specifications.

PURPOSE.

2. To be used for gaskets and as water-tight packing for doors, hatches, gunports, etc.

GENERAL.

3. (a) Sheet rubber shall be of uniform thickness and have a smooth finish. It shall be furnished in rolls 36 inches wide containing not less than 100 pounds each, unless a smaller quantity is specified in the proposal.

(b) Strip rubber shall be of uniform thickness, shall have a smooth finish, and shall be of the dimensions specified.

(c) Molded rubber shall be of the shape and dimensions specified. Molds shall be furnished by the contractor, unless otherwise stated in the proposal.

TOLERANCES.

4. A variation of 10 per cent above the thickness specified will be permitted for sheet and strip rubber; provided, that such increase shall not exceed 1/16 inch.

MATERIAL.

5. The gaskets shall be properly vulcanized and be made from and have all the characteristics of a compound containing not less than 45 per cent of washed and dried fine Para rubber, not more than 3.5 per cent of sulphur, with the remainder suitable dry, inorganic mineral fillers. The mineral fillers may contain barytes, but shall be practically free from sulphur in other forms and from any substance likely to have a deleteri-

ous effect on the rubber compound. The sulphur in barytes will not be included in the allowable sulphur content.

TESTS.

6. (d) With each delivery of molded rubber, the contractor shall furnish four sample pieces 8 inches long, 1½ inches wide, and ⅛ inch thick. They shall be guaranteed by the manufacturer to be identical in composition and cure with the rubber offered for delivery, and on analysis shall show the same chemical composition as the delivery.

Test pieces shall be cut from these samples. In the case of sheet and strip rubber, the test pieces shall be cut from the delivery itself. All test pieces shall be cut by a die measuring ¼ inch in width at the constricted part.

(e) When the test piece is stretched 2 to 11 inches, the permanent elongation, when measured, shall not exceed 20 per cent. The tensile strength shall be at least 2,200 pounds per square inch, and the elongation at the breaking point shall be at least 2 to 12 inches.

MARKING.

7. Each roll or package shall be marked with the maker's name, the date of manufacture, and the net weight in pounds.

Valuation of Reclaimed Rubber.

By Thomas F. Carey, Chemist.

IN almost very book that has been published on rubber chemistry and compounding one finds comment to the effect that it is difficult to understand the persistence upon the market of so-called recovered rubbers whose prices are altogether out of proportion to their intrinsic values.

Discussion of the proper valuation of reclaimed rubber is pertinent to-day, when the price of crude is proportionately low. When the finished product is to be sold by volume or by the article, as is the case in the insulated wire, and a considerable part of the mechanical goods industries, specific gravity becomes a prime factor. When goods are to be made to specifications, physical properties and rubber content must be known.

Tensile strength may be determined from a sample mixed with 5 per cent sulphur, upon an experimental mill, and cured at a fixed pressure in a mold. If, for instance, the tensile strength of a reclaimed rubber, under these conditions, were 1,000 pounds per square inch, and, under factory conditions, a compound containing a proportion of it had a tensile strength of 600 pounds per square inch, then by a simple calculation from a curve a fair idea of the tensile strength of any other reclaimed rubber could be ascertained in the same compound under factory conditions, provided its individual strength were first tested experimentally.

Age tests can be made by the now well-known Geer method, and the insulation resistance and electrostatic capacity tests may be determined by the method of C. O. Weber.

Provided the physical characteristics of the reclaimed rubber tested prove satisfactory, it becomes necessary to ascertain the real intrinsic value. To do this we must know:

(1) Price per pound.
(2) Percentage of rubber.
(3) Specific gravity.

If the percentage of rubber and specific gravity are the same for the two reclaims, price per pound becomes the determining factor. If the price per pound and percentage of rubber are the same, specific gravity becomes the determining factor. If the specific gravity and price per pound are the same, the percentage of rubber becomes the determining factor.

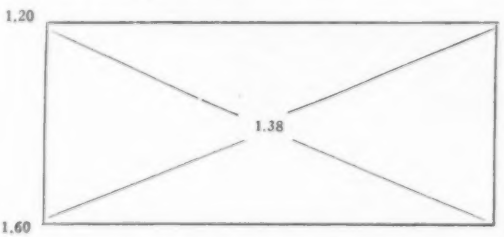
Where all three are different, as is almost always the case, first figure the percentage of rubber in a compound containing, say, reclaimed No. 1. Then figure a compound and add enough reclaimed No. 2 to make the percentage of rubber the same. Then figure the price per pound of each, the gravity of each, and the volume cost per cubic foot, and the results provide a comparison of the real intrinsic values.

The specific gravity of the compound may be ascertained by dividing by its respective specific gravity the percentage by weight of each ingredient. The sum of these quotients is divided into the total number of pounds in the compound. The result equals the specific gravity of the compound.

If it is necessary to determine percentage by volume of any substance, divide by its specific gravity the percentage by weight of the ingredient and multiply the product by the specific gravity of the compound.

Where it is necessary or desirable to figure the percentage by weight of two substances of known gravity in a compound of known gravity, the following methods may be used.

Example: What percentage by weight of two substances of respective gravities (1.20 and 1.60) is a compound of specific gravity 1.38 composed of?



1.20 × 1.38 = 1.6560
1.60 × 1.38 = 2.2080

3.8640

1.65 ÷ 3.86 = 42.7% of Reclaimed No. 1
2.20 ÷ 3.86 = 57.2% of Reclaimed No. 2

By using this method it will be found that many seemingly low-priced reclaims on the market are in reality inordinately high.

No reliable chemical data are at present available to help distinguish the quality of the rubber present in reclaims so that purchasers must rely upon such evidence of quality as is shown by physical properties, and for intrinsic value upon such results as are afforded by the foregoing method.

CUBAN BUSINESS PROSPECTS GOOD.

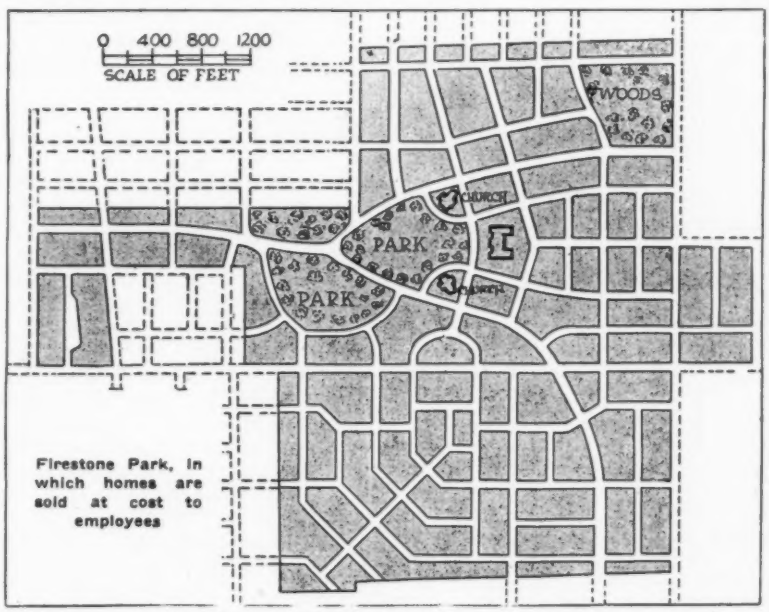
Edward H. Huxley, president of the United States Rubber Export Co., Limited, who returned recently from a short trip to Cuba, reports that the general business outlook there is decidedly encouraging, at least for the immediate future. For several months past the Cubans have done a rushing business with Spain in foodstuffs and supplies, receiving fabulous prices and intending to replenish their larders through the United States at a handsome profit on the entire transaction. Although the average Cuban is pro-Ally, most Spaniards in Cuba are pro-German, but the prevailing sentiment is indicated by the fact that Morro Castle is now serving as a caravansary for interned Germans. While the greatest volume of rubber business now consists of tires, the prospects for a big footwear year are good, Mr. Huxley believes, and a jump in mechanicals is also anticipated.

Homes for Workmen Reduce the Labor Turnover.

By John Barnard, Architect.

ONE of the big problems in every industry is to reduce the labor turnover to a minimum; to develop good men and to hold them. Recruiting and training unskilled workers to fill vacancies is expensive in many ways, such as maintenance of a large employment department, inferior workmanship and consequent waste, reduced output, frequent accidents and damage to machinery.

Five years ago the Firestone Tire & Rubber Co., Akron, Ohio, was afflicted with all these labor problems. From 20 to 30 per cent of the employes left the factory monthly; absentees averaged 15 to 20 per cent of the entire force, and accidents injured 4 per cent. The exorbitant costs of such a situation led Robert E. Lee, factory superintendent, in 1912 to urge building the $350,000 self-supporting club house mentioned in previous issues of THE INDIA RUBBER WORLD. From that time, Mr. Firestone and the other officers of the company have given hearty support to the idea of building better relations with their operatives on a foundation of practical ideals. By improving factory conditions and surroundings generally, instituting a profit-sharing plan to foster mutual interest in the business, and helping men to buy their own homes, the labor turnover has been greatly decreased, accidents reduced, punctuality improved, productive capacity increased and a better spirit of cooperation created.



PLOT PLAN OF THE FIRESTONE PARK ALLOTMENT.

Adoption of the standard 8-hour working day, institution of a permanent day force with the newer employes working at night, regulation of discharges through the factory superintendent, free medical and dental attention, new factory walls of 85 per cent glass, and other welfare benefits of this sort were big factors. Of all the innovations, however, none has been of greater value than the development of the Firestone Park allotment. Every married man wants to own his own home, and the opportunity to do so with monthly savings on easy payments like rent has stimulated thrift and proved an effective means of holding the best men at their jobs. The opportunity has been appreciated the more because the phenomenal growth of the rubber industry has nearly trebled the population of Akron within six years and caused evil housing conditions.

To improve the situation, a real estate company was formed as a subsidiary corporation by the Firestone concern. A large plot of land was then purchased, 2,400 feet from the factory and located on healthy high ground in one of the most beautiful sections of the city, affording a splendid view of the surrounding country. This has been attractively laid out with paved streets and sidewalks, including sewers, storm drains, water, gas, electric lights, trees and shrubbery, the total investment with provision for approximately 900 houses being about $650,000. Near the 16-acre park, centrally located for the enjoyment of property owners and their children, land has been donated for several churches and a public school to be erected by the city.

Over 100 houses have already been occupied, more than 200 more are now under construction, and as 873 lots have been purchased the company has decided to enlarge the allotment to provide 1,300 lots more.

The present plot of 220 acres was purchased at $1,200 per acre. Deducting for improvement space, there are four lots to the acre, so that each costs $300 plus $625 for improvements, making a total of $925, which is $25 more than Firestone employes pay for them. The houses are sold at actual cost, ranging from $2,200 to $3,000. Employes may purchase either lots or houses by payment of 5 per cent with their order and monthly payments of 1 per cent, out of which the company pays interest on the investment, insurance and taxes. An allowance of 6 per cent is made on the house if workers wish to assume the insurance. Persons other than Firestone employes must pay 10 per cent more in advance and also in monthly payments.

This enterprise is costing the Firestone company approximately $1,500,000, but it is believed that the benefits to be derived, together with the profit from sales to outsiders, will make the transaction an even break when completed. Dividends on the investment will be paid chiefly in contentment, cooperation and long service, which make for personal efficiency and are decidedly worth while. Thus the most valuable operatives will own their own homes, live healthy, care-free lives in home surroundings so pleasant that they will prefer not to leave the firm's employ, yet the cost to the company will be virtually nothing, the whole idea being merely to help employes to help themselves. [*This is the fourth of a series of articles devoted to the better housing of employes.—Editor.*]

WOOD COMBS MADE IN GERMANY.

According to the "Rheinisch-Westfalische Zeitung," wood is now being largely used in place of hard rubber, ivory, celluloid, and other substances in the manufacture of combs in Germany. Excellent toilet combs, it is stated, are made from thinly cut, faultless birch and beechwood. They are light in weight, clean and cheaper than any other kind of comb and prove entirely satisfactory in use. These new "war" combs include ornamental ones which are frequently carved or painted.

What the Rubber Chemists Are Doing.

DEPOLYMERIZATION AND OXIDATION OF RAW RUBBER.[1]

III. VISCOSITY RESTORING ITSELF AFTER PLASTICATING.

VAN HEURN studied the possibility of restoring the viscosity of plasticated rubber, using samples of *Hevea* crêpe, *Hevea* sheet and *Hevea* smoked sheet. These were plasticated on hot rolls. Immediately after cooling, about three grams of each sample was shaken in brown bottles with 100 c.c. of benzene, till the rubber was entirely dissolved. After filtration through glass wool, solutions of different concentrations were made of the filtrate in order to measure the relative viscosities at 30 degrees C. These viscosity numbers were as follows: *Hevea* crêpe, 145; *Hevea* sheet, 179; and *Hevea* smoked sheet, 170. These numbers denote the area enclosed by the viscosity curve, the ordinate of the three per cent solution and both axes. If the ordinate of the one per cent solution were taken, as is customary with viscosity measurements of unplasticated rubbers, the differences would not be sufficiently evident.

After storage for 20 days, the samples were again dissolved in benzene as before and viscosity numbers of their solutions determined. The numbers found were as follows: *Hevea* crêpe, 157; *Hevea* sheet, 207; and *Hevea* smoked sheet, 191.

These figures in comparison show that the rubbers partly restored themselves.

IV. THE OXIDATION OF RUBBER.

Van Rossem's conclusion that *the oxidation of rubber is a secondary process,* which can take place only when the rubber has been previously depolymerized to a definite critical viscosity, is perfectly compatible with the investigations of Gorter, Peachey, Kirchof and Kerbosch.

Gorter found that oxidation started only after six days in an atmosphere of oxygen in diffused daylight. Apparently during that time the daylight caused sufficient depolymerization to retard the oxidation.

Peachey observed that rubber, after its resin had been extracted with acetone, was inclined to oxidize much sooner than non-deresinated rubber. He concluded that the resin influenced the velocity of oxidation, but overlooked that the deresination during extraction with acetone for ten hours materially assisted depolymerization.

Kerbosch showed that rubbers prepared by evaporation exhibit a much slower velocity of oxidation than those obtained by the usual method of coagulation by acetic acid. He concluded that the presence of soluble substances in the latex considerably decreases the oxidizability of the rubber.

Kerbosch's observations are apparently in disagreement with those made at the Institute, according to which heated rubber will become oxidized sooner than unheated. However, the Institute's experiments have only referred to the *moment* when oxidation is started, whereas those of Kerbosch deal with the *velocity* of oxidation. A new investigation taking this difference into account would certainly be advisable.

Reference should be made to observations by Fol, who found that on heating rubber for a few hours at 100 degrees C., no oxidation takes place.

V. THE INFLUENCE OF COPPER SALTS.

Many investigators testify that copper salts have an extremely injurious influence on rubber and cause it to become tacky in a short time. Copper salts may occur in rubber through coagulation with acetic acid containing copper, or by using copper washing rolls and other copper utensils on the plantation.

[1]Continued from THE INDIA RUBBER WORLD, March 1, 1918.

Clayton Beadle and Stevens estimated that 0.01 to 0.02 per cent copper in acetic acid used for the coagulation was ample to produce tackiness permanently. Eaton showed that a rubber sheet immersed for one minute in a one per cent solution of copper sulphate and then washed for two hours became perceptibly tacky.

Tests made at the Institute confirmed the bad influence of copper salts contrasted with the action of other metallic salts. Further investigation is needed to settle whether the process of depolymerization or that of oxidation is accelerated by copper salts. The Institute considers that it is likely that the depolymerization is influenced.

NEW SOURCE OF SULPHUR.

A new source of sulphur is being made available for the western market, according to "Metallurgical and Chemical Engineering," by the development of a mineral deposit, carrying about 50 per cent free sulphur, located about 20 miles from Creede, Colorado, at the head of Sulphur Creek. It was discovered twenty years ago and is now operated by the Colorado Sulphur Co. About 30,000 tons of ore have been located assaying from 41 to 65 per cent of sulphur.

The refining is effected by loading the ore into small perforated-bottom cars which have been previously lined with burlap. These cars are then run into the retorts, which are simple cylinders placed horizontally, with a distinct incline toward the front. After the heads are bolted on, steam is turned in. The sulphur melts and runs through the burlap, while the unmelted gangue remains in the cars. The liquation proceeds for about an hour, after which the steam is turned off, the cars removed and discharged. The melted sulphur is run out into pans and cooled, being then crushed and ground as required for market. The product is practically clear sulphur, analyzing over 99.5 per cent pure. It is free from arsenic, selenium, tellurium or other impurities of an injurious character.

PARTIAL COAGULATION OF LATEX.

The following is an abstract of the investigation of O. de Vries on the partial coagulation of latex, in "Archives of Rubber Culture" through "Chemical Abstracts."

On addition of acetic acid in the proporton of one to 450-600 parts of rubber there separates, after a half hour or more, a highly colored, chemically impure, rapid-curing first clot, comprising 15-25 per cent of the total rubber, and possessing low tensile strength, high viscosity and high coefficient of vulcanization. The remaining latex, on the addition of more acid or even standing overnight, produces a very pale second clot, having nearly the properties of normal crêpe. The use of greater initial amounts of acid gives a first clot with a higher percentage of the total rubber, and the difference in quality between the second clots tends to disappear. This explains the fact that Campbell found no marked differences in time of cure or in physical properties between the different fractions. The separation of a first clot is only possible with undiluted latex of about 30 per cent rubber content.

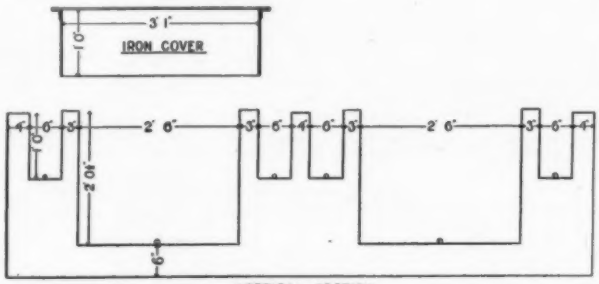
VEGETABLE OILS, FATS AND WAXES.

The United States Bureau of Chemistry of the Department of Agriculture has investigated a large number of vegetable oils, fats and waxes. The list embraces 186 oils, 65 fats and 18 waxes. Among the oils examined are those from the seeds of the *Hevea* and *Manihot* species which produce Para and Manicoba rubber. Of the oils well known in rubber compounding or used in the manufacture of rubber substitutes, the list includes

China wood, colza or rapeseed, linseed, mustard, corn, cottonseed, palm and castor oils. The fats and waxes examined are of minor interest in rubber working, the only ones mentioned, used in that connection, being carnauba and ocotillo.

"M. C. T." PROCESS OF COAGULATION.

A practical method of coagulating latex without the addition of material was discovered accidentally by W. S. Crosse, engineer in charge of the factory on the Cicely Estate, Teluk Anson, Federated Malay States, in 1914. The process is called the "anaerobic process." There are two kinds of organisms which apparently live on latex; one set causes coagulation and the other greatly retards it. The good bacteria from the planter's point of view are the "anaerobic" organisms and these work best when all air is excluded from the latex. That is the discovery of Mr. Crosse which has since been developed by researches of B. J. Eaton.



VERTICAL SECTION

The illustration shows a cross-section of a double compartment of the coagulating tank which consists of two compartments each 21 inches wide, 30 inches long and two feet deep, inside dimensions. Each compartment is closed during operation by a wooden cover over which is placed another of iron provided with a deep flange which stands in the water-filled cavity surrounding the latex receptacle and thus forms an effective seal against the entrance of air to the inner compartment.

The coagulating operation is effected by passing fresh, undiluted latex through a sieve into the tank until it reaches to about three inches from the top. It is then skimmed and covered by the wooden and iron covers. A bent copper pipe is next slipped underneath the iron cover, the long leg of the pipe extending outside the tank. All that remains to be done is to fill up the water jacket until it overflows the outer wall, and when no more air can be felt coming from the pipe the latter must be removed.

The next morning, when it is desired to machine the rubber, the sealing water is run off, the covers removed, and the coagulated latex taken out and machined with as little delay as possible.

The use of sodium bisulphite is optional with this process, the result being a brighter color, not a better rubber.

The quality of crêpe produced is superior to the average estate first latex crêpe, which is due to the concentration of latex employed. The rate of cure is rapid for crêpe, which is also due to the concentration of the latex and absence of acid. With any one type of rubber, such as crêpe, very uniform results are obtained.

The cost of coagulation by this fermentation process is only one-tenth of a cent per pound of rubber as compared with over one-half cent when acetic acid is used. It is thus economical both to the planter and the manufacturer of rubber goods.

SYNTHETIC RUBBER FROM CALCIUM CARBIDE.

In a recent paper on the "Financial Prospects of Synthetic Rubber," read before the Philadelphia section of the American Chemical Society, Dr. Frederick Dannerth, of Newark, New Jersey, states that the United States is in a good position to produce calcium carbide as a raw material from which to manufacture synthetic rubber based on the use of acetone as developed by the Badische company.

METHOD OF ANALYSIS.

SULPHIDE SULPHUR IN SULPHURET OF ANTIMONY.

THE following method, by M. S. Bailey, in "The Chemist-Analyst," for the determination of sulphide sulphur in golden sulphuret of antimony should prove of assistance to rubber chemists. Dissolve 0.25 grams of antimony sulphide in 5 c.c. of fifth normal caustic soda. When antimony color has entirely disappeared, dilute to about 100 c.c. with distilled water, add 5 grams of sodium chloride and boil for a few minutes. Filter and wash well with hot water. Add an excess of 3 per cent hydrogen peroxide (about 50 c.c.). Make slightly acid with hydrochloric acid. If an antimony sulphide precipitate is formed, it indicates that enough peroxide has not been added and the sulphur has not been entirely oxidized. This can be remedied by making the solution alkaline with caustic soda and adding more hydrogen peroxide and again acidifying with hydrochloric acid. If an antimony sulphide precipitate is again formed, this process must be repeated. If a precipitate of another kind is formed, this must be filtered off. To boiling filtrate add slowly 10 c.c. of fifth normal barium chloride. Continue boiling for a few minutes and keep hot until precipitate settles. Filter hot on an ashless filter paper, wash extra well with hot water to make sure that all antimony salts pass into solution. Ignite and weigh barium sulphate precipitate. Calculate per cent of sulphur. This sulphur includes sulphide sulphur, free sulphur and calcium sulphate. Sulphur may be determined by well-known methods and subtracted from the total; remainder is sulphide sulphur. If the per cent of antimony is known, the amount of antimony tri-sulphide and antimony penta-sulphide may be calculated as follows: If x equals antimony and y equals sulphide sulphur, then per cent of antimony tri-sulphide equals 3.501 x minus 5.249 y and per cent antimony penta-sulphide equals 6.249 y minus 2.501 x.

SULPHUR IN VULCANIZED RUBBER.

B. J. Eaton and F. W. F. Day,[1] following their account of the estimation of free and combined sulphur in vulcanized rubber, and the rate of combination of sulphur with different types of plantation Para rubber (see The India Rubber World, April 1, 1917), append a summary in which they state that they propose to continue their investigations on samples similar to those previously examined but with lower proportions of sulphur, especially mixings containing about five per cent of sulphur which do not show the marked overcures which are obtained when using mixings containing ten per cent of sulphur. It is proposed also to investigate further the effect of very prolonged curing on similar samples.

The authors state that while their figures do show a relationship, the samples investigated, which differ widely in rate of cure, are insufficient to permit a more definite statement. They propose to investigate further samples of widely varying rates of cure for periods which give the standard load-stretch curve, used in their method of comparing the rates of cure of different rubbers.

They further state that it appears probable that a relationship will exist when the caoutchouc is unchanged. If, however, the caoutchouc has undergone any degradation produced by physical means, for example, heat, or chemical action, so that we are not dealing with caoutchouc only, it is possible that no direct relationship will be found between the rate of combination of sulphur and the rate of cure of such a rubber when compared

[1] Agricultural Bulletin of the Federated Malay States, November, 1917.

with a normal sample. The published figures available at present with regard to combined sulphur are insufficient to allow any definite conclusions to be drawn.

CHEMICAL PATENTS.

THE UNITED STATES.

RUBBER SUBSTITUTE.—An elastic composition comprising rubber and ocotillo gum in proportions varying from one to 100 parts of ocotillo gum to 100 parts of rubber. (Edgar W. Snyder, Los Angeles, California, assignor, by mesne assignments, to Ocotillo Products Co., a corporation of Delaware. United States patent No. 1,254,632.)

RUBBER RECLAIMING PROCESS. Rubber waste is heated with carbohydrates in the form of starch, which, under the condition of devulcanization, causes decomposition of the fibrous material in the waste. (Harold R. Murdock, Naugatuck, Connecticut, assignor to Rubber Regenerating Co. of Indiana. United States patent No. 1,257,292.)

THE UNITED KINGDOM.

BOTTLE STOPPERS.—Hard vulcanized screw-stoppers for bottles consist of india rubber, four parts (by weight), boiled oil, two parts, sulphur two parts, ground slate 39 parts, and carbon black one part. (H. B. Fox-Bourne, Albany House, Caterham, Surrey, England. British patent No. 111,002.)

RUBBER SUBSTITUTE.—A rubber-like product is made by digesting casein or animal glues in carbolic or acetic acid and treating the product with formic acid, formates, formalin, chromic salts, alums, tannic acid or mixtures of these. (C. Weygang, Maidenhead, Berkshire, England. British patent No. 111,171.)

VULCANIZING COMPOSITIONS.—Titanic oxide, which may be in the form of minute particles deposited on particles of calcium sulphate, is mixed with rubber. If the rubber is to be vulcanized, the titanic compound is mixed with the sulphur before addition to the rubber, and serves to accelerate vulcanization. If desired, lead oxide, zinc oxide, lithopone, or other materials may be added. (L. E. Barton, 1520 Cleveland avenue, Niagara Falls, New York, and H. A. Gardner, 1910 South street, Washington, District of Columbia, both in U. S. A. British patent No. 111,257.)

SUBSTITUTE FOR VULCANITE.—Fibrous pulp in moist condition is mixed with a perfectly dry or air dry glutinous or gelatinous substance, such as gum, starch or glue. The mixture is heated to 165-212 degrees F., compressed by squirting, pressing or rolling, and dried. (H. Jackson, Oakenclough Paper Mills, Garstang, Lancashire. British patent No. 111,946.)

INDIA RUBBER.—Latices, inferior, dirty, or imperfectly coagulated rubbers; raw tacky, or scrap rubbers, or rubber gums in any form are treated in the cold with asphalt, bitumen, tar, pitch, or the like, wholly or in part dissolved. (R. B. Ransford, 24 Southampton Buildings, Chancery Lane, London. British patent No. 111,906.)

INDIA RUBBER.—Coagulated rubbers, namely, commercial raw rubber, inferior, dirty, or imperfectly cured rubbers, or scrap rubbers in any form, are purified by soaking in a solution of a salt or salts from which sulphurous acid is or can be liberated by the addition of an acid, but not such as also liberate sulphur. (R. B. Ransford, 24 Southampton Buildings, Chancery Lane, London. British patent No. 111,907.)

THE DOMINION OF CANADA.

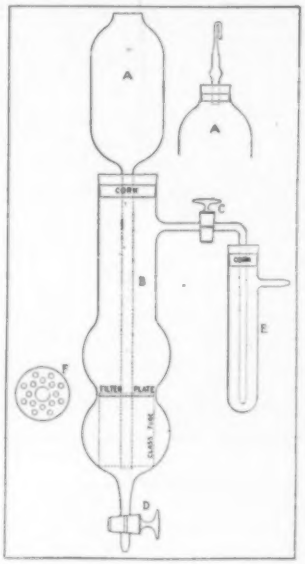
RUBBER SUBSTITUTE.—A composition of matter consisting of glue, glycerine and molasses, to which is added crude rubber, pigments, vulcanizing agents and a toughener such as formaldehyde. (John Flint, Emu Plains, near Penrith, New South Wales, Australia. Canadian patent No. 180,443.)

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS," BY HENRY C. Pearson, has been revised and brought up to date. Now on the press and will be ready for mailing about May 1.

LABORATORY APPARATUS.

PORTABLE HYDROGEN SULPHIDE GENERATOR.

A NEW portable form of hydrogen sulphide generator has recently been described by W. Faitoute Munn in the "Journal of Industrial and Engineering Chemistry." The generator is quite light, practically in one piece, self-adjusting, of convenient size, and is held by a condenser-clamp to an iron support. Although designed for the preparation of sulphureted hydrogen, it may be used for preparing carbonic acid, hydrogen, or any other gas.

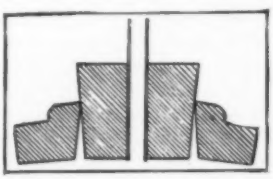


The fairly heavy glass tube *B*, which is the main part of the apparatus, has a stop-cock *C* fused to it near the upper extremity. Two bulbs are blown on the lower half of the tube and below these a stop-cock *D*, with a fairly wide bore, is fused. A lead plate, with holes as shown in the drawing, is supported between the bulbs by means of a piece of tubing having about the same diameter as the plate and cut to length required to bring the plate support to a point between the bulbs. This glass support rests on the lower bulb.

The tube of the apparatus acts as the reservoir for the acid. It is two and a half to three inches in diameter, five to six inches long, with a three-eighths-inch tube ten and a half inches long sealed to its lower extremity. This tube passes through a rubber stopper placed near its upper end, while the lower part passes through the filter plate and nearly to the bottom of the lower bulb. The stop-cock *C* has its tube bent as shown in the figure and supports a fairly heavy-walled test-tube, which in turn has a side tube fused to it near its upper end. This test-tube contains a small quantity of water and acts as a purifying chamber for the gas evolved.

DEVICE FOR HASTENING FILTRATIONS.

Rapid filtration is largely dependent upon keeping the stem of the funnel filled with liquid, which in turn requires that the filter paper be so fitted to the funnel as to minimize the formation of air channels. When the funnel-stem does not fill spontaneously the best way to coax a reluctant liquid column is to use a combination of a No. 7 rubber stopper fitted with a short glass tube, with a Bailey crucible holder for Gooch crucibles. By holding this device firmly against the inside of the funnel above the filter, and blowing gently through the tube, a steady, regulated pressure may be applied which will generally accomplish the result. The effect is the same as if a gentle suction were used, without the trouble of changing to a suction flask.



This device has also been found useful in hastening the drainage of a filter, especially if some means is available for obtaining a current of air under slight pressure. (R. R. Turner in "The Chemist-Analyst.")

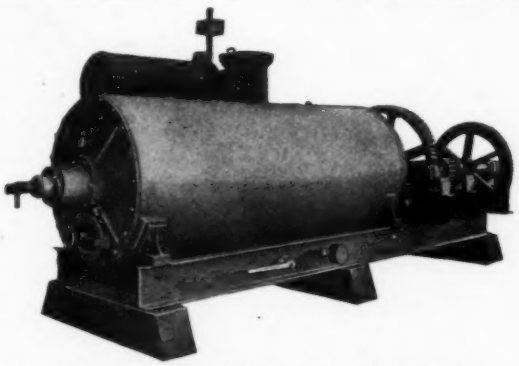
MANUFACTURERS OF HEXAMETHYLENE TETRAMINE ARE EXPERIencing difficulties in procuring the materials from which this organic accelerator is made.

New Machines and Appliances.

SOLVENT RECOVERY APPARATUS.

THE Stokes rotary vacuum dryer, illustrated herewith, has proved to be an excellent machine for the recovery of solvents. One use of special interest to reclaimers is the removal and recovery of solvent vapors from shredded tire carcasses and other fiber stock used in the manufacture of leather substitutes.

The steam-jacketed cylinder which forms the main body of the machine is connected in series with several pieces of auxiliary apparatus as follows: a dry dust filter (shown

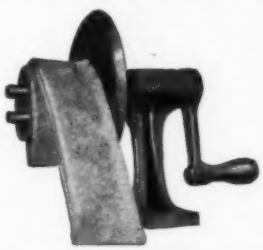


on the back of the machine in the illustration), a surface condenser, a vacuum pump, and a secondary condenser on the atmospheric side of the vacuum pump. The charge in the cylinder is constantly and thoroughly agitated by a double spiral agitator, which insures ready escape of the vapor and a uniform product. The agitator automatically empties the machine when the discharge outlet is opened. The filter collects all the dust from the charge which might otherwise foul the condenser and pump. Most of the solvent condenses in the first condenser but some of the vapor passes through the pump and is caught by the secondary condenser, which operates either at atmospheric pressure or at a higher pressure, as required.

The percentage recovery is very good. Tests on machines operating on benzol and alcohol show 95 to 98 per cent recovery. The solvent is completely removed from the material and the drying takes place at a low temperature; thus materials which are sensitive to heat are uninjured. (F. J. Stokes Machine Co., Philadelphia, Pennsylvania.)

THE WILLIAMS TUBE DEFLATOR.

An improvement in the conventional type of inner-tube deflator, commonly used for removing the air from the tubes prior to the operation of making a repair, is shown in the accompanying illustration. This machine is designed to produce the required results in a minimum amount of time and it is built along the lines of simplified mechanical construction that will instantly appeal to the practical repair man.



Its operation is quick and extremely simple, the tube to be deflated being slipped over one of the projections provided on the plate, when, by turning the handle, the tube is wound tightly around the two projections, thereby exhausting the air within. Any size of inner tube can be quickly deflated on this machine. (The Williams Foundry & Machine Co., Akron, Ohio.)

A NEW ELECTRICAL CONTROL FOR CALENDERS.

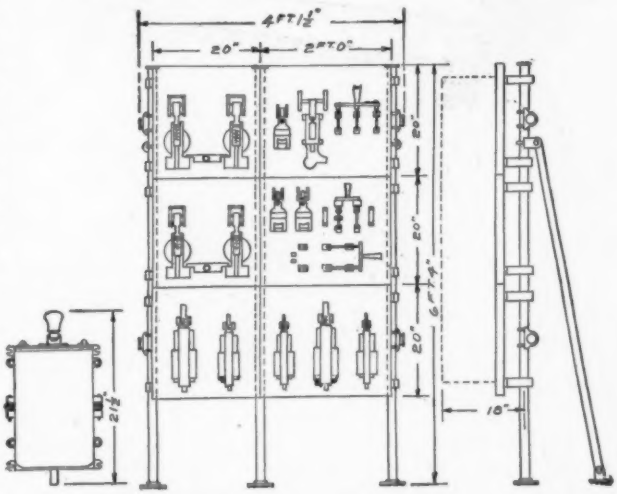
A new system of semi-automatic control for 115-230-volt 4-1 speed double voltage shunt-wound motors for driving rubber calenders, has been developed by the General Electric Co.

The calender drive is operated through a master controller designed to give 115- or 230-volt operation with 18 field points on each voltage for speed regulation.

Throwing the master controller in one direction starts the motor on 115 volts and the field is automatically kept at full strength during acceleration. The accelerating contactors are of the service current limit type and have a load pick-up to insure that they will come in on light loads. When the final accelerating contactor closes, the motor will further accelerate to the full weakened speed at which the controller is set.

If a still higher speed is desirable, swinging the controller handle in the opposite direction will put the motor on the 230-volt line where armature and field acceleration will occur as on the 115-volt line, 18 additional speed points being now available. There is no objection to starting directly on 230 volts if the operator so desires. Bringing the controller to the "off" position will allow the motor to stop.

A "safety first" feature of the equipment is the "quick stop" device. This is a small enclosed switch with a lever arranged to be operated by a rope, which runs across the calender where the workman can easily reach it. When this switch is pulled all line circuits are broken and the calender equipment is brought to a very quick stop by means of three-point dynamic



braking. The calender drive cannot be started again until the stop switch is reset.

The entire system is extremely simple. There is not an electrical interlock on the control panel. This is an important feature, as in previous methods of control, which utilized electrical interlocking, the sulphur in the rubber mills formed a coating in the interlock contacts, which at times prevented them from making circuit. Mechanical interlocks are used in the new system and afford protection against the possibility of contactors sticking in. The accelerating contactors have a self-contained operating and calibrating coil, and the contactor is cut out after operating.

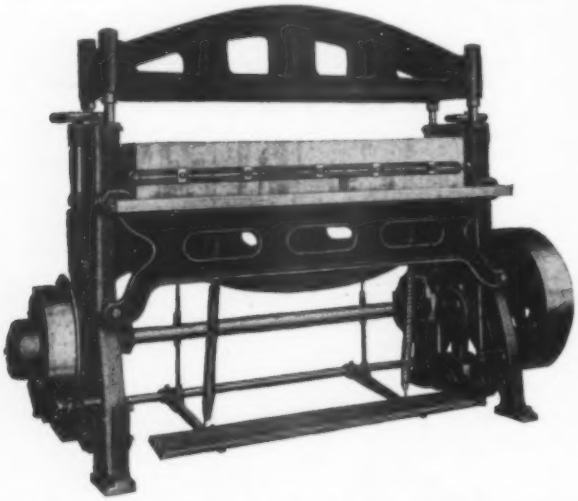
The motor used for the calender drive is the type RF motor, which is applied in sizes up to 75 h.-p. for single voltage, and 125 h.-p. for double voltage equipments. Where the single voltage system is used, either automatic or semi-automatic control

can be provided. (General Electric Co., Schenectady, New York.)

GEARLESS SOLE AND HEEL-CUTTING MACHINE.

One of the most important machines used in the manufacture of rubber soles and heels is the dieing-out machine or beam dinker, as it is commonly called. The sheet of stock is placed on the cutting table, built up of wooden blocks, and the cutting die is held in position on the sheet by the operator, who depresses a foot-treadle, when the beam descends, striking the die with sufficient force to cut through the stock. This procedure is continued across the width of the stock, that is advanced until the entire sheet is died out.

These machines are made in various lengths to suit individual requirements, the heel machine being usually four feet wide,



while the sole machine is, as a rule, nine feet wide. The machine shown in the illustration is of the latter type, and is friction driven, operated by means of a treadle, and supplied with suitable brakes. This machine should be operated at a maximum speed of 215 revolutions per minute, or, preferably, 190 revolutions per minute, the latter speed giving very satisfactory results with reference to wear on machine and daily output. The horse-power requirement is not less than 1½, and where an individual motor is used two horse-power would be adequate. (The United States Machine Corp., Boston, Massachusetts.)

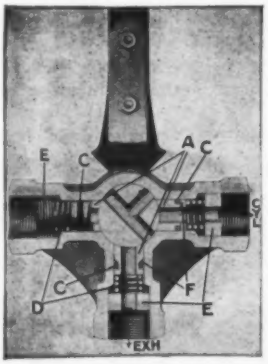
A UNIQUE HYDRAULIC VALVE.

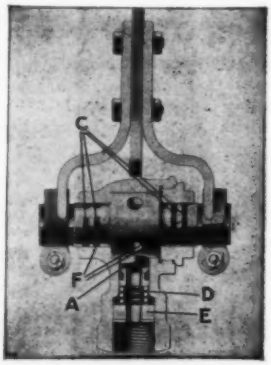
The successful operation of hydraulic presses used in making molded rubber goods is largely dependent on the efficiency of the controlling valve. Hydraulic valves should be simple in construction, easy to operate, wear-resisting and reliable, thus insuring a maximum press output that is impossible when using faulty valves.

The valve here illustrated presents features of design and construction that will be of interest to the rubber trade where hydraulic presses are in common use. There is only one moving part, the hard, phosphor bronze plug which turns within the valve body between accurately fitted bushings, *A*. These are made of soft hydraulic bronze and take practically all the wear, as they are held firmly against the plug by springs, *D*, thus compensating for wear. The springs are held in place by retaining nuts, *E*.

The valve is controlled by one handle that is moved forward and backward by the operator. When it is drawn toward the operator, the intake is open and pressure is admitted to the cylinder; when the handle is pushed forward the pressure is exhausted through the discharge port. Between these two points, which are 90 degrees apart, the valve is tightly closed and at no time can both intake and discharge be open together.

These valves are made in sizes from three-eighths to one and one-half inches with rated pressures of from 500 to 5,000 pounds

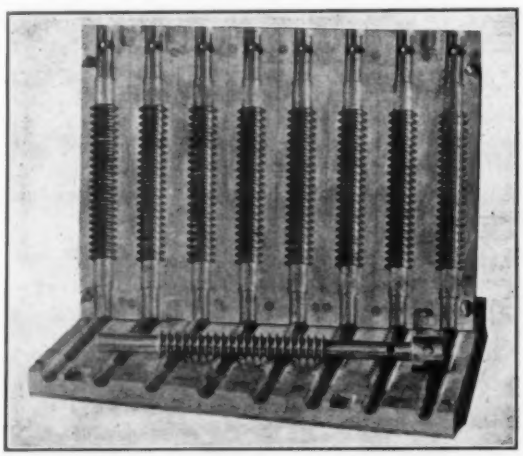




per square inch. (Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pennsylvania.)

MOLD FOR GAS MASK HOSE.

Yankee gas masks of the most approved type are now being made by the thousands, and rubber forms a very important part in the construction of this necessary trench equipment. The rubber corrugated hose that joins the facepiece of the mask to the chemicals container, or canister, as it is called, is made in molds and must be perfect, as the soldier breathes through this tube during a gas attack. These corrugated tubes are made in two-part molds. The illustration shows a Paralite mold and one of the cores. The extreme lightness and thermal conductivity claimed for these molds by the maker are features that will instantly suggest easy handling and rapid curing to the rubber manufacturer, the result being lower production cost and



a maximum output when compared with the operation of ordinary cast iron molds. (The Paralite Co., 609 Swetland Building, Cleveland, Ohio.)

THE DITTENHOEFER TWO-IN-ONE INNER TUBE.

The elimination of punctures has long been the object of inventors and hundreds of devices are the result of their efforts to diminish the popularity of changing tires on the road. While substitutes for air, viscous tire fillers, armored treads and reliners have indicated the general trend of inventive effort, a radical departure from the beaten track is worth men-

tion. It is simplicity itself, consisting of two ordinary tubes, instead of one, placed within the shoe, both being connected to the usual tire valve. One only is inflated, and when the inevitable puncture or blow-out occurs, the motorist inflates the reserve tube and continues his trip. (The Dittenhoefer Tube & Rubber Co., 29 La Salle street, Chicago, Illinois.)

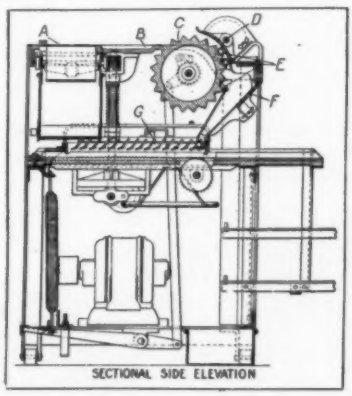
CLARK'S TUBING AND STRAINING MACHINE.

The Clark tubing machine has a well-established reputation of many years' standing in the trade for reliability and durability. Designed with few moving parts and strongly constructed, it resists the wear and strain that devolves upon machines of this type. It is used for the manufacture of tubing, covering insulated wire; for straining reclaimed rubber, special fixtures are attached to the head. The many Clark machines that are in operation throughout the country afford evidence of their utility and practicability. (Estate of Edred W. Clark, 12-14 Wells street, Hartford, Connecticut.)

MACHINERY PATENTS.

MACHINE FOR MAKING RUBBER RODS AND TUBES.

THE rods or tubes extruded from a tubing machine are received on the endless traveling belt *A*, where they are powdered with soapstone and carried to the center of the machine. Here the operator rolls them into the soapstone-filled depression *B* from which they are successively transferred to the revolving star cylinder *C*, where they are trimmed to uniform length by cutting disks—one being shown at *D*. The rimmed rods, or tubes, two of which may be seen at *E*, are delivered by the cylinder to a chute *F*, that guides them to the mechanism *G* forming part of a removable tray which is moved intermittently to the right by a rack-and-pinion movement. When the tray is filled with rods, it is removed to a box containing soapstone and upon releasing the levers the rods are deposited in alinement within the box upon a layer of soapstone. After each layer of rods has been dropped in the box, they are covered with a layer of soapstone, and so on until the box is filled, when it is placed in a vulcanizer. (J. C. Reich, Chicago, Illinois, assignor to Western Electric Co., Inc., New York City. United States patent No. 1,257,960.)



SECTIONAL SIDE ELEVATION

OTHER MACHINERY PATENTS.

THE UNITED STATES.

1,255,192. Machine for impregnating fabrics with rubber. I. S. McGiehan, New York City.

1,255,320. Machine for forming pneumatic tire casings. G. F. Knight and B. M. Frank—both of Canton, Ohio; said Frank assignor to said Knight.

1,255,456. Apparatus for making inner tubes. J. G. Moomy, Erie, Pennsylvania.

1,255,588. Repair vulcanizer. C. B. Drake, Norfolk, Virginia.

1,256,385. Repair vulcanizing plant. J. H. and F. V. Smith—both of San Francisco, California.

1,256,496. Apparatus for vulcanizing rubber by ultra-violet rays. H. Olivier, Paris, France.

1,256,499. Rewinding machine. J. A. Cameron and G. B. Birch, assignors to Cameron Machine Co.—all of Brooklyn, N. Y.

1,256,503. Web tensioning device. G. H. Lewis, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Massachusetts.

1,256,657. Process for making surgical bandages. J. A. Cameron and G. B. Birch, assignors to Cameron Machine Co.—all of Brooklyn, New York.

1,256,658. Perforating, slitting and rewinding machine. J. A. Cameron and G. B. Birch, assignors to Cameron Machine Co.—all of Brooklyn, New York.

1,256,659. Machine for making surgeons' bandages. J. A. Cameron and G. B. Birch, assignors to Cameron Machine Co.—all of Brooklyn, New York.

1,256,664. Machinery for kneading rubber and the like. S. C. Davidson, Belfast, Ireland.

1,256,704. Press vulcanizer. J. C. Lauritzen, Akron, Ohio.

1,256,716. Tire tread building machine. T. Midgley, Worthington, Ohio, assignor to Morgan & Wright, Detroit, Michigan.

1,256,841. Quick acting tire chuck. W. C. Stevens, Summit County, assignor to the Firestone Tire & Rubber Co., Akron—both in Ohio.

1,257,594. Repair vulcanizer. A. Fay, Louisville, Kentucky.

1,257,853. Slitting and rewinding machine. S. Hansen, assignor to Cameron Machine Co.—both of Brooklyn, New York.

THE DOMINION OF CANADA.

180,254. Apparatus for cutting and reeling tire fabric. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of N. DeCourcey, Detroit, Michigan, U. S. A.

180,256. Rubber mixing machinery. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of H. A. Welton and H. J. Hoyt—both of Detroit, Michigan, U. S. A.

180,267. Machine for making tires. The Firestone Tire & Rubber Co., assignee of W. C. Stevens—both of Akron, Ohio, U. S. A.

180,271. Tube repair vulcanizer. The Marvel Accessories Manufacturing Co., assignee of J. B. Rose—both of Cleveland, Ohio, U. S. A.

180,377. Pressure cure apparatus and process. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of C. E. Bradley, Mishawaka, Indiana, U. S. A.

180,520. Tire stripping machine. The Firestone Tire & Rubber Co., assignee of W. C. Stevens—both of Akron, Ohio, U. S. A.

180,677. Cementing machine. The United Shoe Machinery Co. of Canada, Limited, Maisonneuve, Quebec, Canada, assignee of J. W. Cosgrove, Medford, Massachusetts, U. S. A.

THE UNITED KINGDOM.

111,176. Tire-building machine. H. Wade, 111 Hatton Garden, London. (Miller Rubber Co., Akron, Ohio, U. S. A.)

111,756. Machine for winding golf ball cores. M. McDaid, 56 Seafield Road, Leith, Edinburgh.

111,928. Bead wire-covering machine. W. & A. Bates and J. Healey—all of St. Mary's Mills, Leicester, and F. Shaw & Co., Corbett Street Ironworks, Bradford, Manchester.

112,016. Machine for making cord tire strips. J. M. Gilbert, 250 West 54th street, New York City, U. S. A.

112,021. Tire building machine. A. O. Abbott, 275 Hurlbut avenue, and W. B. Norton, 424 Ford Building—both in Detroit, Michigan, U. S. A.

112,151. Time device for vulcanizing presses. Ajax Engineering Co. and J. Cox, Arthur street, Birmingham.

112,176. Machine for applying hard rubber base to solid tire rims. Wood-Milne, Ltd., and T. H. Roberts, Ribble Bank Mills, Preston, Lancashire.

112,234. Pressure cure vulcanizer. W. J. Mellersh-Jackson, 28 Southampton Buildings, London (Mishawaka Woolen Manufacturing Co., Mishawaka, Indiana, U. S. A.).

112,332. Apparatus for spraying the interior surface of pneumatic tire casings with rubber solution. G. A. Urbach, 309 Mayflower street, Pittsburgh, Pennsylvania.

NEW ZEALAND.

39,396. Tire repair vulcanizer. S. Le Fevre Varvel, 18 Bridge street, Sydney, New South Wales, Australia.

PROCESS PATENTS.

THE UNITED STATES.

1,255,496. Method of making hollow rubber toys. J. E. Abler, Guelph, Ontario, Canada.

1,257,665. Process of producing artificial leather. C. E. Arnold, assignor to E. I. du Pont de Nemours Powder Co.—both of Wilmington, Delaware.

1,257,756. Process of producing artificial leather. F. Sparre, assignor to E. I. du Pont de Nemours Powder Co.—both of Wilmington, Delaware.

THE DOMINION OF CANADA.

180,255. Rubber article. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of R. B. Price, New York City, U. S. A.

180,257. Rubber boot. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of R. B. Price, New York City, U. S. A.

180,258. Rubber sole. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of C. Lee, New Brunswick, New Jersey, U. S. A.

THE UNITED KINGDOM.

112,312. Electrical retreading process. W. B. Burke, 10623 Columbia avenue, Cleveland, Ohio, U. S. A.

New Goods and Specialties.

A NEW SOLE PATTERN—THE "TROOPER."

A LAST has been developed to fit the prevailing style of army shoe, that is used not only in making light rubbers, but also in heavy overshoes, arctics, Oregons, and gaiters. The pattern is a combined variation of the usual knurling employed on rubber soles. (Apsley Rubber Co., Hudson, Massachusetts.)

BATHING SHOE OF PURE GUM.

A distinct novelty in rubber footwear is the pure gum bathing shoe shown here. It is unique in appearance and also in construction. The sole and upper are of buff, semi-transparent gum, rough-surfaced, acid-cured and having the appearance of pale crêpe sheet. There is no lining, but an insole of smooth, transparent gum gives an even surface for the foot, a piece of similar texture covering and reinforcing the only seam, that at the back of the heel.

The shoe is strongly put together, with no raised seams; nor is a filler needed at the forepart of the sole. For ornamentation there is a narrow band or foxing around the edge of the sole, a similar band around the top, and outlining the hole in the vamp, also a pointed toepiece and a neat bow, all these being of rubber of a contrasting color. The shoe is one which will demand careful examination by practical rubber men and should sell readily as a practical shoe as well as a novel one. (Gutta Percha & Rubber, Limited, Toronto, Canada.)

THE "NAUGAHYDE" RUBBER BAG.

A new traveling bag made of rubber is built on the "English club frame" of high-grade steel, and the trimmings are of brass. The top of the bag, like the best ones in leather, is soft and pliable and rich-appearing. There is no stitching in this bag nor are any rivets used. The whole is vulcanized like rubber boots or water bottles, and the lining cannot be separated from the outside fabric. This doubles the strength of the bag and eliminates the loose, easily torn lining which forms a part of many traveling accessories. (United States Rubber Co., 1790 Broadway, New York City.)

THE "NEARKID" HOT WATER BOTTLE.

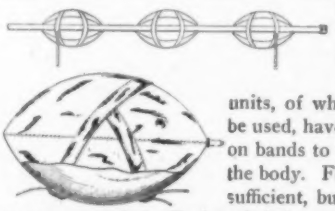
A new line of molded rubber goods comprises a hot-water bottle and fountain and combination syringes in four colors—white, tan, red, and mottled, an ice cap, and face bags, with combination attachment sets and tubing. The hot-water bottle is shown here, made of smooth, stock, with a soft, velvety finish. The line is known as the "Nearkid Seamless Success Series." (The Seamless Rubber Co., Inc., New Haven, Connecticut.)

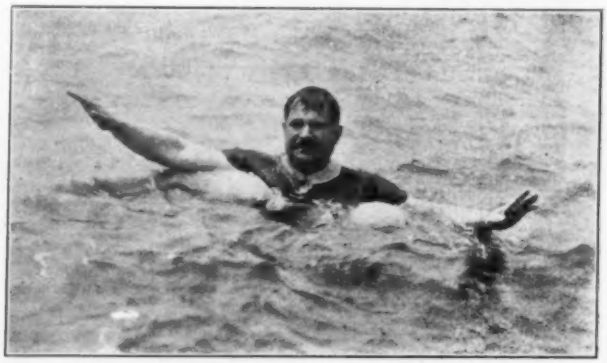
A FIRST-AID KIT FOR TIRE REPAIR.

A new tire-repair kit provides all-rubber patching material and special cement, which can be used at any time or place in repairing punctures. The material may also be used to repair hot-water bottles, automobile tops and the like. Representative jobbers are carrying these kits in stock along with other accessories. They come in three standard sizes, and each contains sufficient material to mend several tubes. (The General Tire & Rubber Co., Akron, Ohio.)

A LIFE-PRESERVER INVOLVING THE FOOTBALL PRINCIPLE.

A recently patented life-preserver which involves the principle employed in a football, is shown in the accompanying illustrations. Each unit is made of strong duck, reinforced with stitched-on straps, encasing a rubber bladder which is inflated by means of a valve at the end. These units, of which one, two or three may be used, have spaces under the stitched-on bands to slip a belt to fasten around the body. For swimming, two units are sufficient, but as a life-preserver, three are recommended. Each unit being entirely independent of each other one, if one becomes punctured in any way, the remaining two will afford adequate support. The photograph shows the inventor, a man who normally weighs 257 pounds, upheld in the

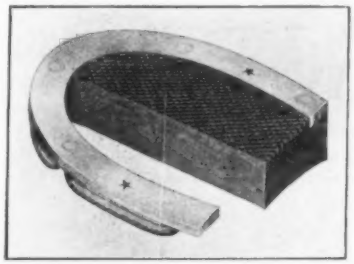




water without effort on his part and entirely free of support other than that provided by his life-preserver. (Michael Baron, patentee, Newark, New Jersey.)

AN IRON-CLAD RUBBER HEEL.

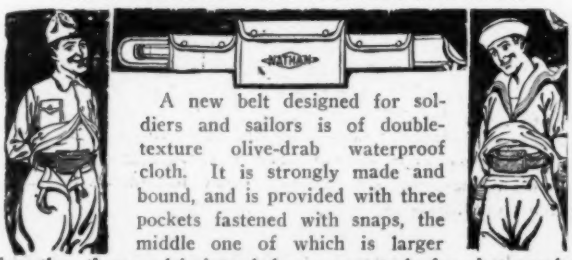
A new rubber heel, made primarily for army requirements, but which is likely to become popular for civilian wear, is pictured here. It is much the same as other rubber heels, as far as resiliency and method of attaching is concerned, the novelty being a steel-edge plate, similar to that recommended for reinforcing leather heels on army shoes. This heel plate prevents wearing down at the side or back, and obviates the danger of slipping on wet surfaces as a result of such wear. It also produces a slight click in walking that appeals to some who object to the noiselessness of ordinary rubber heels, although approving of their shock absorbing qualities. To anchor this heel plate firmly in the rubber heel, a stiff wire is spot-welded at five points on the back of the plate, forming four arches which are imbedded and vulcanized in the rubber. Such heels have given eight months' hard service, and their resiliency is still unimpaired. (Hazen-Brown Co., Boston and Brockton, Massachusetts.)



THE "OUTLOOK" WINDSHIELD CLEANER.

An automobile windshield cleaner embodying the principle of the rubber squeegee is represented in the accompanying illustration. Pressure of the finger pushes the rubber wiper across the glass, leaving it clean. The wiper strip is held closely and evenly against the glass at every point by an adjustable rubber roller on the opposite side of the glass, which roller also holds the strip out of the line of vision when not in use. This windshield cleaner is made in two styles—the regular, which attaches to or through the windshield frame, and the special, which attaches through the glass. The latter is made for closed cars, but is also used on open ones. (The Outlook Co., 5518 Euclid avenue, Cleveland, Ohio.)

A NEW MONEY BELT FOR THE ARMY AND NAVY.



A new belt designed for soldiers and sailors is of double-texture olive-drab waterproof cloth. It is strongly made and bound, and is provided with three pockets fastened with snaps, the middle one of which is larger than the others and is intended as a receptacle for photographs, valuable papers and keepsakes. The others are intended for money of all denominations. The belt is made in two models. (Nathan Novelty Manufacturing Co., 84-90 Reade street, New York City.)

A SAFETY STEP PLATE OF NEW DESIGN.

Small pyramids of rubber form the particular feature of this new step plate for automobile running boards, providing at once a non-slip surface and one that is efficient in removing mud, etc., from the shoes. The plates themselves, of aluminum or steel, are attached with screws and project less than three-eighths of an inch above the surface of the running board. They come in three different styles, two of them having rubber inserts and the other being covered entirely with rubber. The manufacturer also puts out a heel plate smaller than the step plate, likewise covered entirely with rubber. (Tyler Manufacturing Co., 64 Pearl street, Boston, Massachusetts.)

THE "JIFFY" LIFE-SAVING BELT.

A new patented life-saving belt is made of soft rubber and may be inflated at will, either in or out of the water, in a second of time. There is a small cartridge containing liquid air, which is attached to the right-hand side of the belt. When the cartridge is lifted at a right angle to the body and pushed, the liquid air within it is released into the belt and inflates it. The belt can therefore be worn at any time, either underneath or outside clothing, and inflated when desired. It is claimed that it will support 500 pounds dead weight, but itself weighs only 11 ounces and can be folded to fit into the hip-pocket. It fastens around the waist with a buckle and strap. New cartridges may be purchased separately. (The Jiffy Life Belt Co., 75 Chambers street, New York City.)

THE "HITITRITE" HAND-BASIN FOR CAMPERS AND SOLDIERS.

After a ditch is dug each soldier is a sight, but can make himself presentable by using his "HiTiTriTe"—a collapsible hand-basin five or six inches high, diameter thirteen or fifteen; convenient sizes to buy. Weighing ten or seven ounces, it folds up small and round to fit its rubber covering that protects it from the ground. (Patent pending, Vieau, Hormel & Wagner, 587 Hudson street, New York City.)

The Editor's Book Table.

THE WEST INDIES AS AN EXPORT FIELD. BY GERARD HARRIS, special agent, and various American consular officers. Government Printing Office, Washington, D. C. [378 pages, illustrated, with map. Price, 50 cents.]

THIS comprehensive book contains a fund of information regarding the West India islands, each of the principal ones being given a separate chapter, telling of its physical characteristics, resources, industries, government, imports and exports, needs, and opportunities waiting for United States manufacturers. The laws regarding patents and trade-marks, land titles, commercial travelers and their samples, import and export duties, business and trade methods, and banking facilities are stated and a large amount of information in tabular form is presented. The figures of imports of rubber goods are consolidated, though in one or two instances automobiles and bicycles and their accessories have been separated from "all other manufacturers of rubber."

Trinidad, with its companion island Tobago, is the only one whose rubber exports are mentioned. These in 1915 amounted to 8,235 pounds of balata and 5,031 pounds of rubber. The ruling high prices and extraordinary demand for cotton has revived the cultivation of Sea Island cotton in many of these islands, and it is assuming sizable proportions.

The book is one well worth careful perusal by manufacturers desirous of extending their export trade.

NEDERLANDSCH-INDISCH RUBBERJAARBOEK, 1917-1918 (Netherlands East Indies India Rubber Year-Book). First edition. Published by the "Nederlandsch-Indisch Rubbertijdschrift." Compiled by W. J. van de Leemkolk, editor of the "Nederlandsch-Indisch Rubbertijdschrift," Weltevreden, Java. (Linen cover, 228 pages. Price fl. 2 [U. S. currency = $0.80].)

As is explained in the preface, this little book is intended to be a handy manual which will obviate the need of searching for simple facts about the rubber industry. It is not claimed to be complete and the publishers promise to present a copy of the 1918-1919 year-book to all who suggest additions of sufficient importance.

The present volume gives information concerning The Rubber Growers' Association, Inc., England, and the different Dutch associations; the various scientific institutions and commercial associations in British as well as Dutch territories are also included.

Importers and exporters will find the tables converting Dutch currency into American dollars and English sterling, and of kilos, bouws and hectares into pounds and acres particularly useful. The numerous statistics, items concerning the rubber trade and rubber chemistry, and an alphabetically arranged list of definitions of terms used in the rubber industry, add to the value of this instructive and helpful publication.

POLITIEKE ONTWIKKELING EN HERVORMINGEN IN OOST-Azie en de Positie van Indisch-Nederland in Toekomstige Conflicten. J. B. van Heutsz, Jr. W. L. and J. Brusse's Uitgevers-Maatschappij, Rotterdam, Holland. [Paper cover, 253 pages, 5 maps and index.]

This book on the political development and reformation of eastern Asia and the position of the Netherlands East Indies in future conflicts is really a passionate plea for preparedness by the Dutch, and smacks somewhat of pro-Germanism. To prove his contentions, the author reviews the history of Western penetration into China, describes the wonderful rise of Japan, the policy—wise or otherwise—of the various powers interested, and supplements his statements with numerous quotations, statistics and maps.

Japan and other nations, he states, desire the Netherlands East Indies and know their weakness against invaders. As long as Holland persists in her policy of inaction, of passive resistance, her colonies are at stake and would be forever lost to her should Germany be defeated in the present war. Therefore, Holland must prepare and help her colonies to prepare—and trust the natives, teach them the use of arms best suited to their skill and train them in the tactics imposed by local conditions so that an invading enemy would find himself disturbing a hornets' nest.

NEW TRADE PUBLICATIONS.

THE Raw Products Co., New York City, has sent out a large sheet giving "India Rubber Statistics for 1917" with considerable detail, including United States and British imports and exports, plantations, Brazilian and the world's production, monthly quotations of the leading varieties, etc. A chart shows the fluctuations of prices of fine and coarse Para and First latex pale crêpe, indicating graphically the wide range and relative values during the last three years.

* * *

The Miner Rubber Co., Granby, Quebec, Canada, has issued a very striking catalog of its footwear for the coming season, comprising nearly 100 pages illustrating and describing its full line of light and heavy goods, felt and cloth lines, and tennis shoes. The catalog is an attractive one, each page with a tinted border, and the various specialties are shown in natural colors. In many of the illustrations the overshoe is brought out in strong contrast, the shoe which it covers being indicated in a delicate half-tone tint. Prominence is given the "pressure cure" line. The company makes a wide variety of rubbers adapted to the varying climatological conditions of the territory to which it caters. The tennis lines printed in colors form an important section of the book.

* * *

The B. F. Goodrich Rubber Co., Akron, Ohio, is sending out the "Goodrich News Service," an illustrated sheet about 14 inches square, containing excellent half-tone pictures pertinent to the current war news, with descriptive captions in large type under each. The object is to have such sheets placed in retail store windows, and the advertising value to the company is in the placing of a single line at the bottom reading, "Take home a Goodrich water bottle."

* * *

The Link-Belt Co., Chicago, Illinois, seldom lets a month go by without sending out a finely printed and illustrated booklet devoted to some one of its many specialties. The latest to reach this office is "Chain Drive Motor Trucks and Tractors," by Harold S. Pierce, which gives much useful general information regarding trucks and tractors as a class, and those driven by Link-Belt chains in particular. Like the other pamphlets of this company, it is attractively printed and technically illustrated.

* * *

The Goodyear Tire & Rubber Co., Akron, Ohio, sends out a little booklet descriptive of its "Cord Tires for Motor Trucks," which in the space of 16 pages, envelope size, contains a large amount of information regarding the advantages of pneumatic tires for heavy vehicles. The increased size of Goodyear cord tires for this purpose is noted, the sizes and carrying capacities of the six, seven, eight and nine-inch tires, the amount of inflation, the mileage, etc., are all given briefly, but succinctly, with appropriate illustrations.

* * *

Gutta Percha & Rubber, Limited, Toronto, Canada, opened its new season Monday, February 25, and has issued a catalog which shows by well-made half-tone cuts and detailed description a wide range of rubber boot and shoe styles, including a line of white rubbers, rubbers with red or gray soles, duck and

leather top lines, cashmerette and felt overs, etc. The covers of this publication are embellished with the trade-mark, a Maltese cross on which is superposed a ring bearing the name of the company.

This company has published separately a catalog of "Outing" brand sporting shoes—a comprehensive line covering a number of novelties. The booklet is attractively gotten up in colors; each shoe has a page devoted to it exclusively and an appropriate picture in colors is shown at the head of the page.

* * *

THE MAGAZINE OF WALL STREET FOR MARCH 2, 1918, CONTAINS an article by the Editor of THE INDIA RUBBER WORLD, entitled "Rubber—Past, Present and Future." It outlines the growth of this remarkable industry; its two great booms—the crude rubber and the tire boom; the effects of the war; the belief of some that solid truck tires may outclass pneumatics in volume of production, and the prospect that increased production of crude rubber at a margin of profit analogous to that of the manufacture of sugar in peace time will develop many new rubber products infinitely surpassing the volume of output of to-day's rubber manufactures.

* * *

THE RULES AND REGULATIONS GOVERNING ARBITRATIONS OF THE Rubber Association of America, Inc., which were published in THE INDIA RUBBER WORLD of February 1, 1918, have now been issued for the convenient reference of members of the association as a 16-page pamphlet, also including the blank forms used in connection with such arbitrations.

* * *

JUSTICE EDGAR J. LAUER, OF THE MUNICIPAL COURT OF THE City of New York, has an article entitled, "Conciliation and Arbitration in the Municipal Court of the City of New York," in the January issue of "The American City," in which he outlines the rules of the long-desired method for the amicable and expeditious disposal of litigation now available to any litigant in New York City. In ordinary court procedure the nominal winner is often the real loser in fees, expenses and time, and the new method of conciliation and arbitration marks a notable advance in legal usage that will appeal alike to the wage earner, merchant or manufacturer whose time and that of his witnesses is valuable. Experience has shown that decisions reached in this manner are usually more satisfactory to the parties concerned than ordinary court decisions.

* * *

IN AN ARTICLE ON "THE PHILIPPINES AS AN ASSET OF THE United States," Harold M. Pitt points out the almost incalculable value of these islands as a vastly enlarged "home" market for American products and manufactures; as a source of supply, under our own administration for our requirements of tropical and sub-tropical products; as a base and distributing center for Far Eastern commerce that will give us enormous advantage over European countries in competing for the trade of China, and as a strategic point of transcendent importance that will complete our power to exercise practical control over the Pacific. To the rubber industry the future control and development of the Philippines means much, both as a possible source of crude rubber under the American flag and as an outlet for manufactured rubber goods that will expand enormously with the rising civilization throughout the Far East.

CALENDARS AND SOUVENIRS.

CALENDARS.

A calendar, with a colored panel giving an artistic representation of a mother and child, has been received from the Eagle Rubber Co., Ashland, Ohio.

A large art panel calendar, reproducing the painting "The Path of Dreams," by C. Warde Traver, has been received from the Buffalo Foundry & Machine Co., Buffalo, New York.

SOUVENIRS.

The Davol Rubber Co., Providence, Rhode Island, has sent to the trade an artistically printed wall-card entitled, "Lest We Forget To Do Our Part," an appealing message from a soldier.

A unique blotter made of what the manufacturers call American blotting stone, which can be cleaned after use by placing in a hot fire, has been received from the General Magnesite & Magnesia Co., Philadelphia, Pennsylvania.

NEW INCORPORATIONS.

Boston Tire & Rubber Co., Inc., March 4 (New York), $4,000. S. Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street—both in Brooklyn, New York. Principal office, New York City. To manufacture tires.

Cord-Wycoff Tire & Rubber Co., February 25 (Iowa), $25,000. G. D. Cord, L. P. Wycoff and T. P. Fennell. To purchase, sell and repair automobiles, automobile tires and kindred articles.

Crescent Tire Co., Inc., February 27 (New York), $5,000. M. Ziesler, 523 West 143rd street; M. Ziesler and R. Ziesler—both of 730 Riverside Drive—both in New York City. Principal office, New York City. To deal in tires, etc.

Easy Tire Puller Co., February 23 (Iowa), $35,000. W. A. Baker, (president), C. E. Tuttle (vice-president), J. M. Baker (secretary and treasurer). To manufacture and market a portable tire remover and engage in general business.

Economy Tire Co., The, January 24 (Texas), $10,000. L. Cowans, 3924 South Boulevard, L. A. Goldstein, and S. Segal—both of 1713 Commerce street—both in Dallas, Texas. Principal office, Fort Worth, Texas. To purchase and sell goods, wares and merchandise, particularly automobile tires, casings, tubes and automobile accessories.

Hendrie Rubber Co., January 19 (California), $250,000. Directors: W. C. Hendrie, J. H. Schenck, E. S. Dulin—all of Los Angeles, T. D. Campbell and W. F. Stevens—both of Pasadena—both in California. To deal in rubber goods.

Miller Tire Co. of Newark, March 13 (New Jersey), $25,000. C. D. Sanderson, Sr., C. D. Sanderson, Jr.,—both of 295 Halsey street, Newark, and S. G. Bedworth, 31 Overlook avenue, West Orange—both in New Jersey. Principal office, 286 Halsey street, Newark, New Jersey. To deal and trade in automobile and cycle tires, tubes, accessories and sundries.

New Jersey Mechanical Rubber Corp., February 28 (New York), $5,000. J. O'Connell, 186 Garfield Place, C. Watson, 27 Grace Court—both in Brooklyn, New York and A. L. Burkhardt, 293 Lenox avenue, New York City. Principal office, New York City. To manufacture general rubber goods.

Packard Manufacturing Co., February 13 (Maine), $50,000. H. H. Packard (president and treasurer), M. F. Sullivan (clerk)—both of Auburn, Maine. To manufacture shoes and rubber goods.

Resilient Wheel & Rubber Co., March 6 (Delaware), S. B. Howard, A. W. Britton and G. V. Reilly—all of 65 Cedar street, New York City. Principal office within the State of Delaware is with the United States Corporation Co., 311 South State street, Dover, Delaware. To manufacture and deal in automobile and motor-truck wheels and wheels of all descriptions.

Standwear Shoe Co., November 8 (Maryland), $100,000. S. H. Lauchheimer, 11 North Charles street, A. Sykes, Union Trust Building and H. Muskin, 500 E. Lombard street—all in Baltimore, Maryland. Principal office, 500-516 E. Lombard street, Baltimore, Maryland. To deal in shoes, rubbers and kindred products.

United Shoe Machinery Co. de Cuba, January 16 (Maine), $200,000. H. P. Sweetser, Portland, Maine, and W. B. Farr, Boston, Massachusetts. To manufacture shoe machinery.

THE POLYGLOT RUBBER TRADE DIRECTORY contains valuable information that has been compiled expressly for the rubber trade.

The Obituary Record.

ORGANIZER OF THE RUBBER EXHIBITIONS.

HUNDREDS, perhaps thousands, of men connected with the rubber industry in its many ramifications, will regret to learn of the death of A. Staines Manders, the organizer of the International Rubber and Allied Exhibitions in London and New York.

Word of his demise was received in this country the middle of March, but no particulars are at hand at the present writing.

Mr. Manders was born at Kangaroo Flat, Tarnagulla, in the gold fields of Australia in 1859. His father was publisher of a local newspaper, and the son naturally drifted into journalism, and at one time or another published newspapers, first in Australia and later in England, where he took up his residence in 1900. He reported the exhibition at the Garden Palace, Sydney, in 1879, and later assisted in the organization and management of the other exhibitions which followed.

In 1907 he was interested in the Travel Exhibition, held in London, and the following year organized the International Rubber and Allied Trades Exhibition, held at Olympia, London. This proved him to be a born organizer, and nearly every year thereafter he was active in something in the nature of an exhibition, of educational value and business-bringing success.

The second rubber exhibition was held in London in 1911, the third in New York in 1912, and the fourth in London in 1914. The brilliant success of these is too well known to the readers of THE INDIA RUBBER WORLD to need recording here. We understand that he was planning for a fifth rubber exhibition to be held in London in 1919, and had already done much preliminary work for that enterprise. His latest recorded undertaking was the organization of Belgian Flag Day, in London, to obtain the nucleus of a Foundation Fund for Belgian Orphans, collecting in 16 days over £17,000 to which considerable amounts were later added.

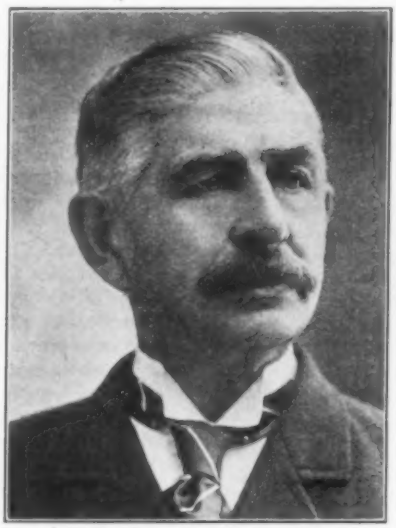
Naturally, his experience in newspaper work was a great aid to the success of his enterprises, as he understood in all phases the duties of a press agent in preparing press matter in an interesting way to assure extensive publicity. It was this faculty that gained for him the appointment of press manager for the Rubber Growers' Association, of London. This association presented to him in 1911 a special gold medal, and his American friends in the rubber trade gave him a beautiful loving-cup at the close of the New York Exhibition of 1912.

Mr. Manders edited the well-known "Who's Who in the Rubber World," was founder of the Fulton-Manders Publishing Co., London, and was the editor of several works published by that house, among them "The Medical Who's Who," "The Colonials' Guide to London," and "Mander's Guide to London." In collaboration with Joseph Torrey, he was editor of "The Rubber Industry (1911 and 1915)," also of the "Official Handbook. Rubber, Cotton, Fibres, Etc." He was associated with Edward G. Salmon and Gerald Fitzgibbon at the International Publicity Bureau. While he made his headquarters in London, he was a cosmopolitan in every sense of the term, having friends in most parts of the world where rubber is grown. At the outbreak of the war he joined the Special Constabulary and continued on duty until prevented by ill health. He took a keen interest in all patriotic movements and was indefatigable in his endeavors to help in every way the members of the Australian Imperial forces. He was a Fellow of the Royal Colonial Institute, London, a member of the Lotos Club of New York City, and of the Rubber Association of America, Inc. He leaves a widow.

Mr. Manders was an interesting figure in the world of rubber from the time of his entrance into it in 1908 until 1914, the beginning of the great war. Through his international rubber exhibitions, his acquaintance grew in six short years until it embraced not only the rubber manufacturing trade, but the crude rubber planters and gatherers and the governments under which they operated.

As a wise, efficient and thoroughly successful organizer in his particular line, he was without an equal. At his first great exhibitions in London, Europe learned more about crude rubber than it had in the previous fifty years. His rubber exhibition in New York in 1912 gave to American manufacturers their first clear view of the great rubber planting industry established in the Far East and the splendid product ready for American consumption.

A. STAINES MANDERS.



WILLIAM KIEL.

SIR HENRY ARTHUR BLAKE.

Mr. Manders had in view even greater expositions to be held at the end of the war, to which the world would gladly come at his bidding.

In his passing, the rubber trade of the world loses a strong, forceful personality, an industrial educator of great merit.

PRESIDENT OF FOUR RUBBER EXHIBITIONS.

News came too late for publication last month, of the death of Sir Henry Arthur Blake, at his home, Myrtle Grove, Youghal, County Cork, Ireland, on February 5.

He was born in Limerick, Ireland, in 1840, his father being county inspector of the Royal Irish Constabulary, a body which young Blake joined as cadet in 1859. He was appointed Resident Magistrate in 1876, afterwards being promoted to Special Magistrate. In 1884 he was appointed Governor of the Bahamas, and then successively Governor of Newfoundland, Jamaica, Hongkong and Ceylon, serving in the last-named colony from 1903 to 1907, at which latter date he retired from official public life to his estate at Myrtle Grove, once the property of Sir Walter Raleigh.

An executive of marked ability, he invariably took an acute interest in the commercial development of the colony under his jurisdiction, and while Governor of Ceylon became particularly interested in what was at that time the new industry of rubber cultivation, and as a result of his initiative the first of the great rubber exhibitions was held in Ceylon in 1906. It was because of his service in that exhibition that he was solicited to become president of the exhibitions in London in 1908, 1911 and 1914.

Sir Henry was the author of books on Ireland and Ceylon and he contributed a valuable article on "Rubber Expositions as a Trade Stimulus" to THE INDIA RUBBER WORLD of March 1, 1912.

He took a deep interest in all matters agricultural as well as political and social in the colonies where he governed, and his steady advancement was an earnest of this trait.

In 1887 he was created Companion of the Order of St. Michael and St. George, and later Knight Commander and Knight of the Grand Cross. He was personally acquainted with many leaders in the rubber planting and manufacturing industries. As a presiding officer his dignity, wit, and eloquence were rarely equaled.

IDENTIFIED WITH THE HARD RUBBER INDUSTRY FROM ITS INFANCY.

William Kiel, one of the leading figures in the hard rubber industry, died at his home in Maywood, New Jersey, on Sunday morning, March 17, in his 76th year.

He was identified with the hard rubber industry practically from its infancy; first with H. C. Meyer, in Hamburg, Germany; then with the New York Hamburger Gummi-Waaren Co. in Hamburg; and later with the Franco-American Rubber Co. in Paris. He came to America in 1876 and took charge of the mill room of the Rubber Comb & Jewelry Co., in West Bloomingdale, now Butler, New Jersey.

In 1898 the Butler Hard Rubber Co., of Butler, New Jersey; The India Rubber Comb Co., of College Point, New York, and the Goodrich Hard Rubber Co., of Akron, Ohio, were purchased by the newly formed American Hard Rubber Co., and in due time Mr. Kiel was made the general superintendent of the new company's various plants, a position he held until December 31, 1917, when he sought retirement on account of his failing health.

William Kiel was a man of strong personality, and was highly respected by his associates, employes, and fellow-citizens. He was instrumental in the formation of the Borough of Butler, New Jersey, and was acclaimed the first mayor of the town, an office he filled with honor for many years.

He was ever willing to work for the welfare of the borough, and contributed freely towards its organization, the construction of good roads, the building of Borough Hall, the establishment of a borough park, churches, a public school, and a borough band, etc.

His remains were taken to Butler for interment in the family plot in Mount Rest Cemetery, and the community was assembled to meet and accompany the funeral procession to the town hall where the body lay in state until practically the entire population of Butler had filed past and paid their last respects to the memory of the man they all knew so well.

He is survived by his widow, three sons and a daughter.

MADE RUBBER SPECIALTIES FOR THE SHOE TRADE.

Alvin S. Dexter, treasurer of the Dexter Manufacturing and Rubber Co., Boston and South Braintree, Massachusetts, died from pneumonia at his residence in the Brighton district, February 15. He was born in Chelsea, Massachusetts, May 8, 1873, and was for some years connected with the Thomas G. Plant Co., Boston, manufacturer of women's shoes. In 1890 he started manufacturing under the name of the Braintree Rubber Cement Co., and later organized the Dexter Manufacturing and Rubber Co., Boston and South Braintree. A few months ago he started the manufacture of a filler for shoe manufacturers, under the firm name of the Fibre-Hide Filler Co., 727 Atlantic Avenue, Boston, intending later to add to this product fiber and rubber soles and rubber heels.

Mr. Dexter was a member of the First Troop, Provisional Cavalry, and was largely instrumental in the building of the Second Unitarian Church in Brookline. He was well known as a yachtsman, being a member of the Boston Yacht Club. He maintained a summer residence at White Lodge, Manchester, Massachusetts. He is survived by three children and his widow who, before her marriage to him in 1905, was Mary W. Folsom, of Brookline, Massachusetts.

FORMERLY IN RUBBER TRADE.

Hon. George von Lengerke Meyer, who died at his home in Boston, Massachusetts, March 9, was a member of the commission firm of Linder & Meyer, which handled crude rubber twenty or thirty years ago, although not now interested in that commodity. Mr. Meyer was well known in public life, having been Postmaster-General and a member of ex-President Roosevelt's cabinet as Secretary of the Navy. He also represented this country as Ambassador to Italy and Russia.

C. C. Bowers, former superintendent of the Bowers Rubber Works factory at Pittsburg, California, died suddenly last month in San Francisco. Mr. Bowers had left the rubber business about eighteen months ago to engage in ranching with his brother, W. F. Bowers, formerly president of the Bowers Rubber Works, San Francisco, California.

CUSTOMS APPRAISER'S DECISIONS.

RUBBER BALLOONS—TOYS.—The protests of Roco Passerello, Chicago, Illinois, that balloons, some with and some without advertising matter on them, were dutiable under paragraph 368 of the tariff act of 1913 as manufactures of india rubber or gutta percha at 10 per cent, instead of under paragraph 342 as toys at 35 per cent, were overruled. (Treasury Decisions, Volume 34, No. 9, February 28, 1918.)

RAINCOATS.—The protest of Dickson Brothers Co., Seattle, Washington, claiming that raincoats were in chief value of cotton instead of wool, as assessed, was overruled. (Treasury Decisions, Volume 34, No. 9, February 28, 1918.)

SULPHIDE OF ANTIMONY—PHOSPHORIC ANHYDRIDE.—Merck & Co., New York City, protested against the assessment of 25 per cent ad valorem on sulphide of antimony under paragraph 144, tariff act of 1913, claiming that it was dutiable as a chemical salt or compound under paragraph 5 at 15 per cent. It was also claimed that phosphoric anhydride was to be admitted free of duty as phosphoric acid under paragraph 387. Both protests were granted. (Treasury Decisions, Volume 34, No. 9, February 28, 1918.)

Interesting Letters from Our Readers.

THE PHILIPPINE PLANTING INTEREST GROWS.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR:—I am enclosing a photograph of *Hevea* taken at the Rio Grande Rubber Estates, Limited, Kabakan, Cotabato. This photograph was secured from J. J. Wilson, of Zamboanga, who has charge of the plantation company's interests in Mindanao.

Your articles on the Philippines in THE INDIA RUBBER WORLD have been read with much interest here. Dr. Strong has recently returned from the United States and is opening up a new *Hevea* plantation in Basilan on quite an extensive scale.

HEVEA TREE,
RIO GRANDE RUBBER ESTATES, LIMITED.

Sincerely yours,

GLENN W. CAULKINS,
Superintendent of Schools.

Zamboanga, P. I.

FROM A RUBBER PLANTER IN THE PHILIPPINES.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR.—Having read an article with editorial comment in "Grenier's Rubber News," by Jesse E. La Dow, of Mansfield, Ohio, I am inspired to state a few facts that perhaps many American rubber manufacturers are not familiar with.

In Mr. La Dow's article, referring to the Malay Peninsula he writes: "Do the inhabitants of this most (rubber) favored spot on earth realize how much America has contributed to their prosperity?" (and then he shows it in dollars and cents.)

I take exception to the expression, "the most rubber favored." In the Philippine Islands, in the Department of Mindanao and Sulu, and in the climatic rubber belt of the world for Para rubber, are many hundreds of square miles of territory. I myself am the owner of a Para rubber plantation on the Island of Basilan, which began production this year. One plantation here, the oldest, has been producing the very best grade of Para rubber for a few years past. With few exceptions, the first plantings of Para rubber trees were begun within the period of the last seven years.

These plantations have been visited by rubber planters of long experience on the Malay Peninsula, who had nothing but praise for the condition they found the rubber trees in, as well as the soil and the climate.

These conditions, lands and climate are under the American flag and protection, where Americans are welcome. I wonder why American capital is invested in a foreign country where it is not wanted, when, right here, under favorable conditions, there are many thousands of acres of untouched soil to develop into rubber plantations.

The article referred to shows that nearly two hundred millions of gold dollars came from America in 1917 for plantation rubber, and this, most, if not all, goes to the part of the globe containing Malaya, Ceylon, Sumatra and Java.

It causes one to feel that the American possessions have been lost sight of and that more attention should be directed to them, and cause a portion at least of this "unbroken stream of gold," to flow into the southern islands of the Philippines.

I have been informed that the American Congress enacted a basic Philippine law limiting any firm or corporation in ownership to twenty-five hundred acres of land for any purpose. The average production of rubber per acre being about three hundred pounds, this entire limited allotment would produce less than four hundred American tons, whereas, I am informed that there are several individual American rubber factories that consume each an excess of twenty-five thousand tons of rubber per year. The lawmakers that enacted such a law were under a misapprehension to enact a law of limitation as an anti-monopoly remedy, because it has the effect of keeping prospective developers of rubber plantations, with millions of capital, away from here, and the law works to a decided disadvantage.

Cannot such a detrimental law be repealed so as to encourage some of this developing money, now going away to other nations, to be attracted here under the American flag? Why should not a committee of Congressmen to whom the enactment of such a law is entrusted, make a visit to the parts of the globe it affects and get first-hand information on the subject? This would certainly have been an intelligent step to take in the premises.

Respectfully submitted,

JOHN SPIRIG.

Zamboanga, Mindanao, December, 1917.

AMONG THE HOUSE ORGANS, OR PUBLICATIONS DEVOTED TO THE dissemination of news to officers and employes of single corporations or industrial establishments, a new-comer is "The Emergency Fleet News," the purpose of which is to inform the personnel of the Emergency Fleet Corporation and the United States Shipping Board of the progress of the work of the various divisions and departments; also to bring executives and men in closer touch in an effort to encourage the spirit of patriotic endeavor and a general speeding up of the work. It is a neatly printed, eight-page, 24-column paper, giving a great variety of information, interesting not only to the men inside, but the public outside the shipyards.

The Rubber Association of America, Inc.

EXECUTIVE COMMITTEE MEETING.

THE monthly meeting of the executive committee was held March 8, Messrs. Work, Firestone, Hodgman, Dunn, Kelly, Secretary Vorhis and Charles Neave being present: The following firm and associate members were elected:

FIRM MEMBERS AND REPRESENTATIVES.

James W. Pfyfe & Co., John L. Sipp, 121-123 Front street, New York City.

L. A. Dreyfus Co., Dr. L. A. Dreyfus, Rosebank, Staten Island, New York.

Curry, McPhillips & Co., Inc., E. G. Curry, 230 Broadway, New York City.

ASSOCIATE MEMBERS.

George W. Daum, Pennsylvania Rubber Co., Jeannette, Pennsylvania.

Frank Poel, Poel & Kelly, 277 Broadway, New York City.

RUBBER ASSOCIATION PROMOTES PACKING PLANTATION RUBBER IN BALES.

THE War Trade Board has had under consideration the question of a drastic curtailment in the import of various raw materials, among them crude rubber, the object being to make available every possible cubic foot of shipping space for use on the Atlantic ocean.

The Committee on Rubber and Kindred Products has found that rubber can be satisfactorily transported from the East packed under compression in burlap bales with a cloth liner, bound with steel bands or wire, with a resultant saving in steamship space of approximately 25 per cent and in weight 20 per cent.

The device employed is a steel press with a packing capacity of about five tons per day. About 100 of these have been ordered by the association, the larger part of which are now in transit to Singapore. These presses will be disposed of by the committee to those desiring to purchase them, at approximately their cost and expense to the Association, and every effort will be made to distribute them in the fairest possible manner, not only in the Malay States but in Ceylon, the Dutch East Indies and adjacent rubber-producing countries.

In order to deal with the situation intelligently and fairly to all shippers in the Far East, The Rubber Association of America, Inc., has appointed a committee of five to be located at Singapore, consisting of the following: W. T. Easley, The B. F. Goodrich Co.; John Donaldson, General Rubber Co.; J. J. Blandin, Orient Rubber Co.; R. J. Obott, Eastern Rubber Co.; H. S. Godwin, Wilson, Holgate & Co.

SPECIAL MEETING RUBBER SUNDRIES MANUFACTURERS' DIVISION.

THE War Trade Board of the United States having called attention to the smuggling of large quantities of rubber sundries to neutral European countries by sailors employed on neutral vessels, a special meeting of the Rubber Sundries Manufacturers' Division was held on March 14, to consider preventive measures. It was decided to send a letter to all manufacturers of sundries, urging them to explain to their jobbing and retail trade the necessity for exercising caution in selling rubber sundries, particularly in quantity, to unknown persons.

The discussion relating to simplifying the manufacture and selling of druggists' sundries by standardization and the elimination of unnecessary sizes resulted in a committee being authorized, with Charles J. Davol, Davol Rubber Co., chairman; a representative, to be named later, from The B. F. Goodrich Co., Seamless Rubber Co., Hodgman Rubber Co., and the United States Rubber Co.; and Frederick H. Jones, *ex-officio*.

The following officers and members were present: Frederick H. Jones, chairman; Charles J. Davol, Mr. Wesley, Edward E. Huber, W. L. Balch, W. O. Rutherford, S. H. Jones, George B. Hodgman, Mr. Kuhne, W. S. Davidson, and H. H. Reddy.

WAR SERVICE COMMITTEE, DIVISION OF RAILWAY SUPPLIES.

GOVERNMENTAL operation of the railroads will necessitate close cooperation on the part of the rubber industry, that the supplies required may be obtainable on an economical basis, in the quantities and in time of delivery to insure successful running of the roads.

The War Service Committee of the Rubber Industry of the U. S. A. has therefore appointed the following committee to assist in the guidance of all members engaged in the manufacture of railway supplies: H. E. Raymond, chairman, The B. F. Goodrich Co.; J. H. Cobb, New York Belting & Packing Co.; J. S. Broughton, United & Globe Rubber Manufacturing Cos.; Guy E. Norwood, Republic Rubber Corp.; J. H. Kelly, Hewitt Rubber Co.; Geo. E. Hall, Boston Woven Hose & Rubber Co.

A question blank has been sent to the trade, calling attention to the urgent necessity of furnishing this information promptly to the committee. The object is to record with the committee available data from which it may call on members interested to form groups to treat with government inquiries on any particular item, and to secure the best results possible for all concerned.

WAR SERVICE QUESTIONNAIRES.

THE procrastination of some firms in furnishing the information requested through the questionnaires sent out by the War Service Committee of The Rubber Industry of the U. S. A. is delaying the constructive work of that committee.

The information requested is of a confidential nature and for government use only. Manufacturers should take this matter seriously and respond promptly. It is an important war measure and speed is essential.

RAINBOW DIVISION, SPECIAL LIBERTY LOAN RUBBER TRADE COMMITTEE.

THE following members of The Rubber Association of America, Inc., were appointed by Benjamin Strong, chairman of the Liberty Loan Committee of the Second Federal Reserve District, to represent the rubber trade of Greater New York in the third Liberty Loan drive:

CHAIRMAN.

Bertram G. Work, The B. F. Goodrich Co., New York City.

VICE-CHAIRMAN.

George B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York.

SECRETARY.

M. L. Hemingway, War Service Committee, Rubber Association, 17 Battery place, New York.

OTHER MEMBERS.

Wm. E. Bruyn, L. Littlejohn & Co.
J. Newton Gunn, United States Tire Co.
W. J. Kelly, Poel & Kelly.

J. Russell Parker, Parker, Stearns & Co.
Homer E. Sawyer, United States Rubber Co.
Henry Spadone, Gutta Percha & Rubber Manufacturing Co.
Charles T. Wilson, Charles T. Wilson Co., Inc.
Clarence H. Low, United States Rubber Reclaiming Co., Inc.
Henry C. Pearson, THE INDIA RUBBER WORLD.
H. M. Williams, THE RUBBER AGE.

This committee is one of several representing the various industries, all of which will be known as the Rainbow Division, Special Liberty Loan Committee.

It is hoped that everyone in the rubber industry in Greater New York will contribute through this committee, also that any firms located outside this territory but with New York branches or representation will make a portion of its contribution through this channel.

FRANCIS E. LLOYD, A.B., A.M.

THE fact that a new species of guayule, the *Parthenium Lloydii*, has been named after Professor Francis E. Lloyd, draws attention anew to one who has done much for this particular product, as well as for the rubber trade in general. This will become more evident when the cultivation of guayule on American soil becomes the notable success that is at last promised, for it was Professor Lloyd who laid the foundation for all subsequent success.

FRANCIS E. LLOYD, A.B., A.M.

Francis Ernest Lloyd was born of Welsh parents at Manchester, England, October 4, 1868. His early education was at private schools, followed by courses at Liverpool Institute, Liverpool, England; York Collegiate Institute, York, Pennsylvania; Lafayette College, and Princeton College, where he earned the A.B. and A.M. degrees. He was also a student at Munich in 1898 and at Bonn in 1901. After some years of teaching at Williams College, Massachusetts, the Pacific University, Oregon, and Teachers' College, Columbia University, New York, he was appointed investigator of the Desert Botanical Laboratory, Carnegie Institute, Washington, District of Columbia, in 1906, and in 1907 was cystologist at the Arizona Experiment Station. His botanical explorations included participation in the Lumholtz expedition to Mexico in 1890, the Columbia expedition to Puget Sound in 1896 and the New York botanical expedition to Dominica in 1903.

His interest in rubber began when he was appointed director of the department of investigation of the Continental Mexican Rubber Co., and in the work prescribed, which included both the botanical and chemical research regarding guayule (*Parthenium Argentatum*, Gray), he associated with him Dr. Theodore Whitelsey, now of the United States Rubber Co., and Professor J. E. Kirkwood of the University of Montana.

The investigations of this trio of scientists were carried on at the plant of the Continental Mexican Rubber Co., Torreon, Coahuila, and on the Hacienda de Cedros in Northern Zacatecas, the latter, a territory about 50 miles square, being regarded as the center of the geographical distribution of the guayule shrub. A year was devoted to this study, the result of which was Professor Lloyd's book "Guayule, a Rubber Plant of the Chihuahuan Desert," an exceedingly scholarly and complete monograph of over 200 pages and 50 illustrations of this interesting rubber shrub, a book which furnished the foundation for the further work so successfully carried on by Dr. W. B. McCallum, after Professor Lloyd's retirement from the Continental Mexican Rubber Co. Later, while representing the General Rubber Co. as consulting botanist, further opportunity was afforded to gather first-hand information regarding this source of rubber.

Besides this monograph, Professor Lloyd has contributed many botanical articles to scientific publications, not only on guayule but on a large number of other plants. To give even an approximately full list would fill more space than is available here, but those pertaining to guayule and other rubber producing plants include, besides scores of others, "Essays in the Plant World," in "Science," in the "Journal of the Society of Chemical Industry," "The American Review of Tropical Agriculture," and "THE INDIA RUBBER WORLD."

THE NEW GUAYULE SPECIES, PARTHENIUM LLOYDII.

He has, however, transferred his attention from guayule to *Hevea* rubber, and is now associated with the United States Rubber Co. as consulting botanist in connection with its far Eastern plantation interests.

Professor Lloyd is a fellow of the American Association for the Advancement of Science, a member of Sigma Xi, of the Botanical Society of America and of the Torrey Botanical Club (associate editor of its bulletin 1899 to 1902), a corresponding member of the Centro de Sciencias, Letras e Artes, Campinas, Brazil, and a fellow of the Royal Society of Canada. At present he occupies the chair of McDonald Professor of Botany at McGill University, Montreal, Canada.

ELATERON A NEW RUBBER INGREDIENT.

Elateron is said to be a combination of hydrocarbons which have the property of blending easily and perfectly with the rubber hydrocarbons without depreciating the peculiar properties to which rubber owes its value.

News of the American Rubber Trade.

CORN PRODUCTS REFINING CO. ANNUAL REPORT.

THE annual report of the Corn Products Refining Co., New York City, for the year ended December 31, 1917, shows that firm to be in excellent financial condition. A net income of $11,348,459.84 and a surplus of $9,260,576.84 are recorded for the year. The total surplus of the company at the end of the year was $18,341,347.80, of which $5,622,485.08 is reserved as working capital.

HOOD RUBBER CO. STATEMENT.

The Hood Rubber Co., Watertown, Massachusetts, presents the following condensed balance sheet dated December 1, 1917.

ASSETS.

Plant (real estate, machinery, etc.)		$4,000,000.00
Merchandise		4,075,021.40
Accounts receivable		4,323,933.11
Cash		930,680.50
Investments in other corporations		184,400.00
Patents		1,000.00
Liberty Bond account—subscriptions	$489,480.00	
Less: Employes' payments	256,383.50	
		233,096.50
		$13,748,131.51

LIABILITIES.

Capital stock—Common	$3,000,000.00	
Preferred	4,000,000.00	
		7,000,000.00
Notes payable		4,150,000.00
Surplus		2,312,291.51
Liberty Bond account		285,840.00
		$13,748,131.51

Merchandise in process of importation and letters of credit and drafts discounted in connection therewith are not included in the foregoing statement.

RUBBER MANUFACTURING PLANT COVERS A BLOCK.

The factory of The Seamless Rubber Co., Inc., New Haven, Connecticut, contains 230,000 square feet of floor space and comprises 26 departments producing molded, hand-made and dipped goods, hard rubber pipes, and general surgical and hospital supplies of both hard and soft rubber. About 700 people are employed. The company was established in 1877 and the plant covers an entire block.

PREMISES OF THE SEAMLESS RUBBER CO., INC.

ANNUAL REPORT OF AJAX RUBBER CO., INC.

The Ajax Rubber Co., Inc., New York City, elected the following officers at its annual meeting: H. L. McClaren, president; L. P. Destribats, L. T. Vance and Stuart Webster, vice-presidents; Harold W. Stimpson, treasurer; Fred E. Dayton, secretary.

The annual report shows an increase of 65½ per cent in sales. The gross sales amounted to $14,849,525 before deducting for cash discounts, freight charges and allowances.

The purchase of the Racine Rubber Co. has proved to be an advantageous step, and the company has built additions to its plants at Trenton and Racine, which, with machinery, molds, etc., have cost approximately $683,539. Orders now on the books for immediate shipment amount to more than 33 1/3 per cent of the total volume of sales during 1917.

DIVIDENDS

The Apsley Rubber Co., Hudson, Massachusetts, has declared its regular semi-annual dividend of two per cent on common stock, payable April 1, to stock of record March 30.

Canadian General Electric Co., Limited, Toronto, Ontario, Canada, has declared its quarterly dividend of two per cent on common stock and its semi-annual dividend of three and one-half per cent on preference stock, both payable April 1 on stock of record March 15.

The Corn Products Refining Co., New York City, has declared its regular quarterly dividend of one and three-quarters per cent on the preferred stock, payable April 15 to stock of record April 1.

The Falls Rubber Co., Cuyahoga Falls, Ohio, declared in December last a dividend of eight per cent, payable quarterly in instalments of two per cent each throughout 1918.

The Goodyear Tire & Rubber Co., Akron, Ohio, has declared its regular quarterly dividend of one and three-quarters per cent on preferred stock, payable April 1 on stock of record March 15.

Kelly-Springfield Tire Co., New York City, has declared a quarterly dividend of $1.50 per share on its six per cent preferred stock, payable April 1 to stock of record March 16.

The Mason Tire & Rubber Co., Kent, Ohio, has declared a quarterly dividend of one and three-quarters per cent on its preferred stock, payable April 1 to stock of record March 20.

The Mohawk Rubber Co., Akron, Ohio, has declared a twenty per cent stock dividend out of the $1,000,000 treasury stock which it recently added to its capitalization, besides a two and one-half per cent cash dividend. Both dividends are payable April 1.

Pennsylvania Rubber Co., Jeannette, Pennsylvania, in March declared its regular quarterly dividend of one and three-quarters per cent on preferred stock and one and one-half on common, payable March 30 to stock of record March 15.

The Republic Rubber Corp. and The Republic Rubber Co., Youngstown, Ohio, paid their regular quarterly dividends of one and three-quarters per cent on preferred stock on March 1 to stock of record February 20.

United Shoe Machinery Corp., Boston, Massachusetts, has declared a dividend of one and one-half per cent (37½ cents a share) on its preferred stock and of two per cent ($.50 a share) on its common stock, payable April 5 to stock of record March 19.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on March 25 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois:

	Bid.	Asked.
Ajax Rubber Co. (new)	51	52⅞
Firestone Tire & Rubber Co., common	93	95
Firestone Tire & Rubber Co., preferred	97	98
The B. F. Goodrich Co., common	41½	45
The B. F. Goodrich Co., preferred	93	99
Goodyear Tire & Rubber Co., common	135	136
Goodyear Tire & Rubber Co., preferred	97	97½
Kelly-Springfield Tire Co., common	41½	42
Kelly-Springfield Tire Co., preferred	75	85
Miller Rubber Co., common	110	120
Miller Rubber Co., preferred	96	97½
Portage Rubber Co.	108	109
Swinehart Tire & Rubber Co.	25	40
United States Rubber Co., common	54½	55
United States Rubber Co., preferred	101¾	102

A. D. THORNTON.

IT was a graceful acknowledgment of the common interests in the rubber industry on both sides of the border line that a Canadian was elected on the board of directors of The Rubber Association of America, Inc., at its annual meeting last January. The member chosen was A. D. Thornton, a director of the Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, a man who has grown up in the rubber business, attaining his position by thorough practical study and experience.

A. D. THORNTON.

Mr. Thornton was born and educated in England, coming to Canada in 1892, when he entered the employ of the Canadian Rubber Co., Limited, as city salesman, his sales territory afterwards extending from Kingston, Ontario, to Halifax, Nova Scotia. He was not satisfied to know the goods only, but determined to learn the intricacies, mechanical and chemical, of rubber manufacture, and in 1897 he entered the factory to institute a chemical laboratory. Soon he became foreman of the shoe millroom, and had charge of the wash house. It was then that the company became one of the first to use plantation rubber, its manipulation there being the successful result of Mr. Thornton's study and experiment.

Later he was made superintendent of the mechanical goods department, and general superintendent of all the manufacturing of the company. He was subsequently elected to the offices of director and vice-president, and when the Canadian Consolidated Rubber Co., Limited, was formed, he became a director of that, likewise.

Mr. Thornton devotes most of his energies to crude rubber, reclaimed rubber, and executive work, but has time left to play golf and is a member of a fish and game club and a snow-shoe club. He is also in keen sympathy with matters military. Despite these interests, he is a lover of home life, having an ideal family—a wife, a son and a daughter. It should be added that he has a host of friends in the rubber business, both in Canada and the United States.

FIRESTONE PROFITS BY PUBLICITY.

The Firestone Tire & Rubber Co., Akron, Ohio, is availing itself of the advertising to be gained from the fact that Barney Oldfield and Earl Cooper, the famous racing drivers, who have temporarily given up racing in accordance with the requirements of the American Automobile Association that no racing contests be held for the duration of the war, have established Firestone tire agencies on the Pacific Coast.

Under the name of the Oldfield Tire Co., at 1211 South Hope street, Los Angeles, California, Barney Oldfield has associated himself with Frank Chance, the well-known baseball champion, and R. R. Colby, a tire man of long experience.

Earl Cooper is located at 1022 11th street, Sacramento, California. During the first week his store was open, he did a business of more than $3,000.

CHARLES BARNEY WHITTELSEY.

"I HAVE had no education whatsoever, having started business life carrying bundles before I was eight years old."

A startling statement of a man who stands to-day at the head, as president and general manager of a great rubber concern, and whose writings are considered authoritative in their particular line.

C. B. WHITTELSEY.

Such was the statement of Charles B. Whittelsey of the Hartford Rubber Works Co., Hartford, Connecticut, where United States tires are made. He may have meant that he had little or no schooling, but as for education, the very facts controvert his words.

He was born in New Haven, Connecticut, in 1869. From bundle boy in a dry goods store in Auburn, New York, he rose to office boy and clerk, and forging ahead, in 1901 he joined the forces of the Hartford Rubber Works Co. as purchasing agent. Four years later he was made assistant to the general manager, and in 1906 was appointed superintendent. In 1911 he was appointed factory manager and secretary, in 1915 became vice-president, and in 1916, president, still holding the position of general manager.

But if manufacturing tires is his vocation, genealogy and history are his avocations. He has compiled and published the Whittelsey-Whittlesey genealogy, the John Pratt genealogy, and the Roosevelt genealogy. He is historian, also, for the Connecticut Society of the Sons of the American Revolution.

Mr. Whittelsey is a life-member of the Society of Automotive Engineers, was a member of the council of that society in 1912-1913, and this year has been elected councilor and treasurer. He has been a member of the Standards Committee, serving on the Pleasure Car Wheel and Truck Standards Division of the Tire and Rim Division, ever since its formation.

He was president of the Hartford Chamber of Commerce in 1914, and in the same year was elected president of the Hartford County Manufacturers' Association; in 1916 he was made secretary and treasurer of the Hartford Factory Owners, Inc. He is a member of St. John's Lodge, No. 4, F. & A. M.

NEW TREASURER FOR THE DRIVER-HARRIS CO.

At the annual meeting of the stockholders and directors of the Driver-Harris Co., insulated wire manufacturers, Harrison, New Jersey, Leon O. Hart was elected treasurer and a director. Mr. Hart was born in Hoboken, New Jersey, in 1885, and was educated at the Stevens Institute of Technology, where he was graduated in 1907 with the degree of Mechanical Engineer. After graduation he worked as a cadet engineer with the Public Service Gas Co. of New Jersey for about one year. In October, 1908, he became associated with the Driver-Harris Co. as electrical engineer, and last March was elected assistant treasurer. Mr. Hart is a member of the American Electro-Chemical Society, and also of the American Society of Electrical Engineers.

PERSONAL MENTION.

Elmer E. Caldwell has been appointed assistant advertising manager of the Ajax Rubber Co., New York City. He was formerly with the Michelin Tire Co., Milltown, New Jersey, and the Canadian branch of the Willys-Overland Co., Toledo, Ohio.

Ralph C. Smith has been appointed sales manager for the Anderson Tire Manufacturing Co., Union Trust Building, Washington, District of Columbia. He was formerly eastern representative for the Reo Motor Car Co., Lansing, Michigan, having been with that concern since the days of the one- and two-cylinder models.

George N. Graham has been appointed general works manager of the Boone Tire & Rubber Co., in charge of both plants at Chippewa Falls, Wisconsin, and Sycamore, Illinois.

W. K. Frederick has been appointed sales manager of the Gryphon Rubber & Tire Corporation, New York City.

George W. Green, formerly with the Sioux City Tire & Manufacturing Co., Sioux City, Iowa, on April 1 takes charge of the new plant of the Great Republic Tire & Rubber Manufacturing Co., McAlester, Oklahoma, as general manager.

J. E. Bright has been appointed general district manager of the Racine Auto Tire Co., Racine, Wisconsin. He was formerly district manager of the Norfolk Tire & Rubber Co., Norwalk, Connecticut.

J. C. Bertsch, M. E., formerly refrigerating engineer with the Westinghouse Electric & Manufacturing Co. Machine Works, East Pittsburgh, Pennsylvania, has resigned to establish himself as consulting engineer, specializing in refrigeration for marine service, rubber mills and gasoline extraction. His address is Monongahela Bank Building, Pittsburgh, Pennsylvania.

J. C. Henne, president and general manager of the Ohio Tire Co., 70 North Fourth street, Columbus, Ohio, distributer of Ohio tires in that territory, is one of four brothers who own and operate the Mansfield Tire & Rubber Co., Mansfield, Ohio, and the Columbia Tire & Rubber Co., Columbiana, Ohio.

A. C. Gregg has been elected president of the Iowa Tire Corporation, 908 West Locust street, Des Moines, Iowa, which deals in seconds, both wholesale and retail.

A. J. Lyons, Milwaukee, has been appointed district sales manager of the Rex-Hide Rubber Manufacturing Co., East Brady, Pennsylvania. He will cover the territory which includes Minnesota, Wisconsin, Iowa, Nebraska, Chicago, Illinois, and adjacent shoe towns. He has been in the counter business for over 20 years, having organized the Lyons Counter Co., Lynn, Massachusetts, of which he was a long time president.

Victor G. Kropf has been elected commissioner of the Tri-City Automobile Trade Association, of Davenport, Iowa, Moline and Rock Island, Illinois, with offices at 221 Masonic Temple, Davenport, Iowa, and is in charge of advertising for an "At Home Week," which is to take the place of the usual automobile show.

F. C. D. Dobson has been appointed branch manager at Kansas City, Missouri, of Bittel-Leftwich, St. Louis, Missouri.

Walter H. Bass, with Gove & French, crude rubber dealers, New York City, took unto himself a wife, March 23, at Trinity Lutheran Church, Akron, Ohio, the bride being Katherine Firey, daughter of Luther H. Firey, president and treasurer of the Star Rubber Co., Akron, Ohio.

John T. Smith and William H. Quigley, who have been with the Eureka Fire Hose Manufacturing Co. since boyhood, have been appointed managers of the Philadelphia office, succeeding M. I. Crane, resigned. Mr. Smith is well known and liked by city officials and fire chiefs throughout Pennsylvania and New York, and the company feels confident that the choice of managers will be approved.

Frank A. Seiberling, president of The Goodyear Tire & Rubber Co., Akron, Ohio, accompanied by other officers of the company, recently visited the Goodyear cotton plantation near Phoenix, Arizona. On the journey west he and his party stopped at El Paso, Texas, where they were entertained by the president of the Chamber of Commerce of that city. Incidentally, a proposal for a Goodyear factory for motor tires at El Paso was urged upon the visitors. Mr. Seiberling did not promise one, but did describe interestingly his plans for a branch factory in the City of Mexico, which were upset by the assassination of President Madero in 1912.

Frederick J. Maywald, F.C.S., rubber chemist, 89 Pine street, New York City, has just returned from a three months' trip to the Pacific Coast, where he has been doing professional work.

O. S. Tweedy, general manager of branch sales for the United States Tire Co., New York City, has resigned to become vice-president and general manager of the L. A. Young Industries Co., a consolidation of the companies in which L. A. Young, of Michigan, has been interested, including the Detroit Wire Spring Co. and several other spring manufacturers. Mr. Tweedy was formerly with the Diamond Rubber Co., Akron, Ohio, the Federal Rubber Co., Milwaukee, Wisconsin, and the Continental Caoutchouc Co., New York City, until the last became a part of the United States Tire Co.

W. W. Cochrane, formerly purchasing agent of the Chain Belt Co., Milwaukee, Wisconsin, and LeRoy W. Onderdonk, also of Milwaukee, have been appointed assistant secretary and representative of mechanical rubber goods division, respectively, of the Petley Rubber Manufacturing Co., Milwaukee, Wisconsin.

J. P. Hall, former treasurer of the Globe Rubber Tire Manufacturing Co., Trenton, New Jersey, and A. R. Colvin, former superintendent of the same concern, have been appointed general manager and superintendent, respectively, of the tire plant of the Combination Rubber Manufacturing Co., Bloomfield, New Jersey. The company manufactures a high-grade tire, with 6,000 to 7,500 miles' capacity.

FISK RUBBER CO. APPOINTMENTS.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has made the following recent appointments: C. D. Whitney, city salesman at Buffalo, New York, transferred from Harrisburg, Pennsylvania, where J. S. Kob succeeds him; R. L. Venable, new branch manager at Peoria, Illinois, succeeding C. C. Ritchey, resigned; L. W. Roberts, manager of branch at Buffalo, New York, transferred from Utica.

A NEW DUTCH TRADING COMPANY.

A new company has been formed for the purpose of developing trade between the Netherlands East Indies and the United States. The name of the company will be the Java-Holland-America Trading Co., with main offices at Rotterdam and a branch office in New York city. It is proposed to open branch offices in other cities in the near future.

SECRETARY BLODGETT RESIGNS FROM HAMILTON COMPANY.

William L. Blodgett, for twenty years secretary and manager of the Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has resigned that position because of ill health. Mr. Blodgett is well known to the trade, having been connected with the rubber business for many years. He was born near Hartford, Connecticut, and went to Trenton when young, entering the rubber business as an office boy, and then was successively stenographer, chief clerk and branch manager. In 1898 he acquired an interest in the Hamilton Rubber Manufacturing Co. and became secretary and treasurer. It was largely through his exertions that the company has built up the extensive business it enjoys to-day.

Mr. Blodgett keenly regrets that ill health compels his retirement at this time, for he had hoped to make the business of the Hamilton company his life work, as he has done up to the present time, and he still has hopes that he may at some future date become active again in the rubber business.

A. Boyd Cornell, formerly secretary of the Empire Rubber & Tire Co., has succeeded Mr. Blodgett in the offices of secretary and manager.

TRADE NOTES.

The Republic Rubber Corp., New York City, recently elected Richard Garlick and R. C. Steese to fill vacancies caused by the retirement of John C. Wick and John T. Harrington from the board of directors.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has removed its branch at Davenport, Iowa, from Harrison street to 328 West Fourth street.

The Perfection Tire & Rubber Co., Fort Madison, Iowa, has completed its second factory unit, 250 by 60 feet and three stories high like the first, with basement, and the steel work on its new three-story office building, 100 by 50 feet, is also finished.

Pennsylvania Rubber Co., Jeannette, Pennsylvania, has installed truck service between Jeannette and Pittsburgh, chiefly for handling tires needed by its Pittsburgh branch, and on the return trip takes back raw material which has been held up en route East or West. A careful record is being kept of the expense as compared with the amount of time saved.

The Doss Rubber & Tube Co., Atlanta, Georgia, has appointed J. D. DuBois its local agent at 205 Columbia street, Dublin, Georgia.

The National Rubber Co. of New York, Philadelphia, Pennsylvania, has established a branch at 4608 Euclid avenue, Cleveland, Ohio.

The Iowa Tire and Tube Co., Iowa City, Iowa, announces a change of name to the Mississippi Valley Rubber Co. J. O. Schulze is president, J. S. Schulze, secretary, and W. H. E. Brooks, factory superintendent. The company has practically finished the equipment of its new factory containing 25,000 square feet of floor space, which will have a daily capacity of 500 tires and 1,000 tubes. These are designated as the Black tubes.

The Brictson Manufacturing Co., Brookings, South Dakota, has purchased a site of six and one-half acres at the southwest corner of Twenty-fourth street and Poppleton avenue, Omaha, Nebraska, where it will erect a modern tire factory and reclaiming plant. O. A. Brictson is president of the company whose office at present is at 1007-24 Woodmen of World Building, Omaha.

The Mid-Continent Tire Manufacturing Co., Wichita, Kansas, recently elected the following officers for the ensuing year: Henry Lassen, president; A. O. Rorabough, vice-president; E. T. Battin, treasurer; S. M. Jackman, secretary; C. D. Darrigrand, manager. The output of the company is now about 70 tires and 200 inner tubes daily.

The Overland Tire & Rubber Co., 1019 Woodmen of World Building, Omaha, Nebraska, expects soon to erect a large factory for the manufacture of tires, belting, hose, molded goods and mechanicals. It was recently incorporated at $2,500,000 under the laws of the State of Nebraska, and this capital consists of 250,000 shares of common and voting stock of the par value of $10 a share. The officers are: James H. Davies, president; W. R. Blowers, vice-president and general manager; Harry Hildreth, Jr., secretary and treasurer.

The Inner Shoe Tire Co., Grand Rapids, Michigan, has moved into larger quarters which enables it to quadruple its output of tires and tire reinforcements.

The Standard Tire & Rubber Manufacturing Co., Willoughby, Ohio, has appointed the Duplex Tread Tire Co., 210 Ohio street, Terre Haute, Indiana, its distributing agent in that city.

The McNaull Tire Co., Toledo, Ohio, announces the appointment of The Graves Sales Corp., 1668 Broadway, New York City, as distributers of McNaull tires in Greater New York. The new company incorporated recently at $60,000, with the following officers: Robert Graves, president; P. M. Boggs, vice-president and treasurer; J. P. Cahoon, secretary and sales manager.

The Standard Malkonite Co., 1404 Arrott Building, Pittsburgh, Pennsylvania, removes April 1 to New Galilee, Beaver County, Pennsylvania, where new offices have just been finished in its factory building.

Meyer & Brown, crude rubber importers, 33 South William street, New York City, have leased offices in the new Equitable Building, 347 Fifth avenue, New York, which connects underground with the Grand Central terminal. The firm expects to move between April 15 and May 1, as soon as the offices are ready.

MANSFIELD MINSTRELS ASSIST THREE WAR FUNDS.

The minstrel show given by employes of The Mansfield Tire & Rubber Co., Mansfield, Ohio, on February 27 and 28, proved to be both a financial and an artistic success. Standing-room-only signs were needed both nights and again at the request performance on March 2. With forty-two former theatrical people among the employes, it was practically a professional show, the scenic effects and costuming being superior to the average traveling organization. All the net proceeds were devoted to the Red Cross, the Y. M. C. A. and the Knights of Columbus.

THE MANSFIELD TIRE & RUBBER CO.'S MINSTRELS.

An interesting 24-page souvenir program, 9 by 12 inches, containing considerable local advertising, was of material assistance to the fund.

NEW TIRE FACTORY IN SOUTH BEND.

The International India Rubber Corp., South Bend, Indiana, has commenced operating its new factory between Ewing avenue and Jay street, adjoining the main line of the Vandalia railroad, connecting also with the main line of the Lake Shore & Michigan Southern. The main building of the plant is 383 feet long and has 29,504 square feet of floor space. The interior walls and ceilings are of glass and the building is equipped with thoroughly modern machinery for the manufacture of tires and tubes. The plant covers eight and one-half acres of land owned by the company.

The officers of the company include: Peter E. Studebaker, president; George W. Odell, secretary and general manager; and Herman BeSaw, factory superintendent.

The offices of Suarez & Co., Limited, crude rubber merchants, have been removed to 4 and 6 Copthall avenue, London, E. C. 2.

VICE-PRESIDENT GEER.

THE election to the office of second vice-president of The B. F. Goodrich Co., Akron, Ohio, is a well-deserved honor to Dr. William Chauncey Geer, who has been associated with the company in responsible positions for the last ten years. Dr. Geer was born in Ogdensburg, New York, in 1876, and was educated at the State Normal School, Potsdam, that State, and at Cornell University, from which latter institution he was graduated with the degree of A.B. in 1902, receiving the degree of Ph.D. three years later. After serving as instructor in chemistry at Cornell, he was employed as an expert on wood distillation in the United States Forestry Service, and in 1907 became associated with The B. F. Goodrich Co. as chief chemist. He was advanced to the office of manager of the development department in 1912, and four years later became director of development of goods and processes in which capacity he has achieved important results and developed many improved methods. The stockholders elected him a director of the company at the annual meeting a year ago, and last month chose him as one of the four new second vice-presidents.

DR. W. C. GEER.

ZINC OXIDE PRICES REMAIN UNCHANGED.

The New Jersey Zinc Co., New York City, announces the following prices on American and French process zinc oxide for shipment on contract during the second three months of this year.

AMERICAN PROCESS "HORSE HEAD" BRANDS.

	Carloads	Less Carloads
Special	10¾c	11c
XX Red	10¼c	10½c

FRENCH PROCESS "FLORENCE BRANDS."

	Carloads	Less Carloads
White Seal	14c	14¼c
Green Seal	13½c	13¾c
Red Seal	13c	13¼c

These prices are based upon shipment in barrels and are f. o. b. shipping point.

Contracts will be written at carload prices when at least a total of 20 tons of all grades is taken during the three-months period.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO. CHANGES.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has removed its automobile equipment division to its plant at Newark, New Jersey, in order to benefit the Government, and all government work will hereafter be done at this plant, utilizing it to capacity. The general and eastern district sales offices of this department are at 110 West 42d street, New York City.

The Pittsburgh service department of the Westinghouse company has moved from Amberson avenue to 6905 Susquehanna street, in the Homewood district of Pittsburgh, and announces that express and freight should be consigned to East Liberty, Pennsylvania, via the Pennsylvania railroad. The automobile equipment service department is also at the same location.

The Cleveland district sales offices, automotive equipment department only, of the above company, are now located at room 501, The 1900 Euclid Building, Cleveland, Ohio.

The company has also purchased the plant of the Baxter Stove Co., Mansfield, Ohio, where it will consolidate the manufacture of its heating appliances now being carried on at other Westinghouse plants.

A NEW ACCELERATOR.

A new vulcanization accelerator recently offered to rubber manufacturers is known as "Accelemal," for which strong claims are made as to efficiency and dependability. By seller's test, Accelemal is shown to be eight times as active as litharge, considering both relative weights and time of cure. Vulcanization is complete in one-half the usual time required for a given compound; in some instances the saving in time may amount to two-thirds. Accelemal also has the merit of not giving off poisonous fumes and of materially improving the physical properties of the rubber.

DAYTON RUBBER MANUFACTURING CO. IN A NEW FACTORY.

With its removal to the new factory, the Dayton Rubber Manufacturing Co., Dayton, Ohio, enters upon a larger and wider field of activity. This factory, situated on a plot of 21½ acres, is thoroughly modern in design and equipment and is excellently adapted to the turning out of its specialties, the "Thoroughbred" pneumatic tire and the Dayton "Airless" tire. The company has set its mark on a production of $5,000,000 worth of these tires during the coming year.

During the year the company will concentrate its efforts on turning out suitable sizes of these tires for Ford cars, light delivery trucks and fire apparatus. "Airless" tires are already in use on fire-fighting apparatus in 700 cities in this country. The "Thoroughbred" tire will show some changes in this year's output. It will have a red side wall and a modified design of tread, and will carry a guarantee of 6,000 miles.

DAYTON RUBBER MANUFACTURING CO.

The officers of the company are John A. MacMillan, president and general manager; C. E. Hooven, secretary and treasurer; George H. Witsaman, superintendent; and Paul C. Hunter, purchasing agent.

The Empire Rubber & Tire Co. has removed its branch at 842 Woodward avenue, Detroit, Michigan, to 222-4 Erie street, Toledo, Ohio, from which center Michigan, Ohio and northeastern Indiana territory will be served.

FIFTH ANNUAL MEETING OF THE NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS.

THE annual meeting of the National Association of Waste Material Dealers was held at the Hotel Astor, New York City, on March 20. There were approximately one hundred fifty members present, whose interest in the proceedings and discussions on the successful prosecution of the war gave evidence of the united and patriotic sentiment that prevails in the association.

After the reports of the various divisions had been given, the retiring president, Louis Birkenstein, read his report that reviewed the activities of the association during the past year. He closed by expressing his appreciation of the efficient and harmonious work of the directors, committees, members, and the secretary. A rising vote of thanks was given to him by the association, followed by another for the officers of the organization.

THE NEW OFFICERS.

The following officers were elected, all of the nominees named by the Nominating Committee being chosen: president, Emanuel Salomon; first vice-president, James Rosenberg; second vice-president, Edward A. Stone; third vice-president, Henry Lissberger; fourth vice-president, Ivan Reitler; fifth vice-president, F. W. Reidenbach; sixth vice-president, Paul H. Loewenthal; treasurer, Mark Sherwin; secretary, Charles M. Haskins; directors for two years—Clarence White, F. C. Overton, H. H. Cummings, Henry Atterbury, and Daniel M. Hicks; for one year—R. D. Cunningham, Herman Muehlstein, M. B. Speer, and J. W. Straub.

David Feinburg, of the David Feinburg Co., Chelsea, Massachusetts, was appointed chairman of the Scrap Rubber Division.

SCRAP RUBBER DIVISION.

The Scrap Rubber Division was called to order by Chairman Paul Loewenthal on Tuesday at 10 a. m. There was a very good attendance, representative houses from all parts of the country having delegates present. While business was generally confined to routine matters, there was much informal discussion of the various conditions of the scrap rubber market. The attempt of the railroads to present a separate classification for scrap tires and a change for other scrap rubber articles, both calling for higher classifications than hold at present, received much attention. Other matters were discussed in which members showed considerable interest.

THE BANQUET.

The fifth annual banquet was held in the north ball-room of the Hotel Astor on Wednesday evening, March 20. During the dinner, patriotic and popular airs were sung and good fellowship was in evidence everywhere. Louis Birkenstein, the retiring president, was toastmaster and opened the speaking with a brief review of the association's activities since its formation five years ago. The speakers that followed urged the necessity of industrial cooperation with the Government in prosecuting the war, and the closing address of President-elect Salomon was a tribute to the devotion of Louis Birkenstein to the association during his presidency.

SALVAGE DEPARTMENT OF THE RECLAMATION DIVISION OF THE QUARTERMASTER'S DEPARTMENT.

Louis Birkenstein, the head of S. Birkenstein & Sons, Chicago, Illinois, scrap rubber dealer, has been appointed chief of the Salvage Department of the Reclamation Division of the Quartermaster's Department. He is now in Washington and will continue to devote his entire time to government work, assisted by Clarence B. White, of White & Brother, Inc., Philadelphia, Pennsylvania, and Julius Hofeller, of Hofeller-Loeser Co., Depew, New York.

The Government has done well in securing the services of these men who stand at the head of their profession and who are willing to give the Nation the benefit of their years of practical experience for $1.00 a year.

THEODORE HOFELLER & CO. DISCONTINUE BUSINESS.

The retirement from the waste rubber business of the old, established firm of Theodore Hofeller & Co., Buffalo, New York, deserves more than passing notice. The history of the firm is interesting. The house of Oppenheimer, Hofeller & Co. was well known in the waste material business when, in 1897, Theodore and Julius Hofeller formed the firm of Theodore Hofeller & Co., and the Oppenheimers started a new concern. Even then, the Buffalo house was doing a heavy foreign and domestic scrap rubber business. In 1908 the Hofellers enlarged their already extensive establishment by the addition of 70,000 square feet of floor space, modernizing their buildings, and securing a side track from the New York Central railroad, so that receipts and shipments could be transferred to cars at the plant. At that time the house was one of the largest, perhaps the largest, scrap rubber plant in the world. It was also one of the first to issue a private telegraph code for the use of its patrons.

THEODORE HOFELLER.

In 1911 the partnership was dissolved by mutual consent, Julius Hofeller retiring. A corporation was formed capitalized at $200,000, with Theodore Hofeller as president and Eugene D. Hofeller, his son, as secretary and treasurer. From this time the concern advertised extensively, claiming to be "The largest dealers in old rubber in the world," this phrase being prominently printed in all their announcements.

It might be mentioned that in 1916 this concern, in conjunction with Buffalo, Louisville and New York parties, bought the Buffalo & Susquehanna railroad, 80 miles long, running from Buffalo to Wellsville, New York, besides acquiring valuable real estate in Buffalo, including desirable dockage space on the harbor front.

Theodore Hofeller was active in the organization of the National Association of Waste Material Dealers, of which he was the first president. Of late years he has not been able to give active attention to his waste material business, being engaged in various other enterprises, and the conduct of affairs has devolved largely upon Eugene Hofeller, who also finds that outside interests now demand more of his time. For these reasons, and because the lease of the extensive premises occupied expires in December of this year, it was decided to discontinue business at once and avoid the trouble and expense of securing and fitting up new premises. In accordance with this decision the patrons of the house were notified early in the year, the date of discontinuance being February 1. There will be no successor to the business.

Annual Report of the United States Rubber Co.

THE twenty-sixth annual report of the United States Rubber Co., presented at the annual meeting March 19, showed a most satisfactory year's business, the total sales amounting to $176,159,694.30, an increase of more than $40,000,000 over the sales of 1916. With the funding of its indebtedness, the company has taken over the plants of most of the subsidiaries, including those of the Rubber Goods Manufacturing Co., all of the minority stock of that company having been acquired. This has made practicable the consolidation of the Mechanical Goods Division of the company which recently has been accomplished, and from which are anticipated very beneficial results.

Before deducting interest charges and income and excess profits taxes, the net profits for 1917 amounted to $24,423,963.51. The deduction of the above-named items, $6,583,386.88; the charging off of $2,500,000 for reduction of inventory values; depreciation of plants and equipment; dividends paid on United States Rubber Co. preferred stocks, $4,961,370, and dividends paid minority stockholders of subsidiary companies, $20,692.50; leaves a surplus for the year of $10,358,514.13, to which is added the surplus at the beginning of the period, leaving the net surplus on December 31, $31,891,207.10.

It will be noted that the consolidation has brought improvements in efficiency of administration and economy of operation. There has been a gratifying growth in the company's export business. The Sumatra plantations show the estimated increase. General progress is noted in the report.

THE PRESIDENT'S REPORT.

To the Stockholders of the United States Rubber Co.:

In compliance with the by-laws of the company, your president herewith submits to the stockholders the following report for the fiscal year ended December 31, 1917.

The treasurer's report, appended hereto and made a part hereof, gives the consolidated general balance sheet as of December 31, 1917, and the consolidated income statement for the year ended December 31, 1917, of the United States Rubber Co. and all its subsidiary companies.

AMENDMENTS TO THE BY-LAWS OF THE COMPANY.

With the notice of the annual meeting there were sent to the stockholders for their consideration certain proposed amendments to the by-laws of the company, the adoption of which it is believed will tend to strengthen our organization. The amendments provide: for the creation of the offices of chairman of the board of directors, and vice-chairman of the board of directors, one or both of which offices may be filled if found advantageous; for increasing the maximum number of directors from twenty-one to twenty-five; for making the operating council,—composed of heads of the operating departments, which has been tried out and has been found to be helpful.—a committee provided for by by-law; for creating the office of comptroller in charge of the accounting departments of the company, in order to relieve the treasurer of this responsibility and thus strengthen both departments; and for other minor changes.

When it is considered that the business of the company has increased from $33,000,000 in 1905 to $176,000,000 in 1917, it will be seen that there is needed a broader and more comprehensive organization.

BASIS OF INVENTORIES.

Inventories of manufactured goods and materials have been taken at cost, and $1,000,000 has been deducted from the income of the year to provide for cases where the market value of certain articles was below cost.

MAINTENANCE.

The plants and properties of the company have been maintained as heretofore in the highest state of efficiency, and, with the charging off of $1,500,000 against the same from the income of the year, as shown above, it is believed that all depreciation is adequately provided for. As it has been some years since the fixed properties of the company were valued, your directors have ordered a new appraisal thereof, which now is in process, the result of which will be known later in the year.

CHARGING OFF FROM SURPLUS.

In connection with the funding of the indebtedness, in the early part of the year, into $60,000,000 5 per cent thirty-year, first and refunding mortgage bonds, the directors have felt it proper to charge off against the company's surplus the entire discount on such bonds, and the amount of the expenses of such funding, amounting in all to $5,362,612.39. They also have made liberal charges to provide for doubtful assets, these latter charges amounting to $1,583,829.28.

PROPERTY, PLANT AND INVESTMENTS ACCOUNT AND FIXED SURPLUSES.

On December 31, 1916, the property, plant and investments account stood at $130,187,628.57 and the fixed surpluses stood at $15,080,230.78. On December 31, 1917, the property, plant and investments account stood at $128,105,825.80 and the fixed surpluses stood at $6,709,275.22. This difference is accounted for by the fact that $8,370,955.56 of fixed surplus was applied during the year in reduction of the property, plant and investments account in connection with our funding, and $6,289,152.79 was added during the year to that account for new construction, enlargement of plants, equipment, etc.

UNITED STATES RUBBER EXPORT CO., LIMITED.

In our export business there has been greater activity the past year and such sales have increased over fifty per cent. In 1917 the proportion of export sales to the entire business of the company has been seven per cent as compared with six and a half per cent in 1916.

MANUFACTURING DIVISIONS.

The business of the company comprises three manufacturing divisions, footwear, tires and mechanical goods, which well balance one another. In the early days of the company its business was almost entirely confined to footwear, and, consequently, the organization of this important division has had a longer time in which to perfect itself. The company entered the tire business and the mechanical goods business chiefly through the acquisition of the Rubber Goods Manufacturing Co. in 1905, and both of these divisions have grown rapidly during the last few years. The prospect of future expansion of all three divisions is most promising, especially in view of the assurance of abundant supplies of crude rubber at a moderate cost owing to the cultivation of the rubber tree in the Far East.

GENERAL RUBBER CO.

This company with its own branches in all the principal rubber-producing centers in the East and Brazil, as well as in London and Liverpool, continues to place us in an advantageous position in regard to our requirements of crude rubber.

OUR SUMATRA RUBBER PLANTATIONS.

Our receipts of rubber from our plantations in Sumatra in 1917 were up to the estimate, and, with the growth and maturity of the young trees, should increase materially in 1918. We have recently formed, under the laws of the state of New York, a corporation to be called the United States Rubber Plantations, Inc., with a present capitalization of $10,000,000 preferred stock and $20,000,000 common stock. This new company, as a subsidiary of the General Rubber Co., will control our Far Eastern plantations.

WAR ORDERS.

With our country at war, we have received larger war orders than in any previous year, and yet these represent only about five per cent of our total business.

PENSION PLAN FOR EMPLOYES.

During the year the company inaugurated a plan for the payment of pensions to aged and infirm employes, which, it is thought, not only will provide a modest subsistence for those who have served the company for a long time and who may not be able to give further efficient service, but also should induce a feeling of loyalty and confidence on the part of the whole body of our employes.

VALUE SHARING PLAN.

While some years ago a system of stock subscription and profit sharing for employes was inaugurated to interest the employes in the stock of the company, it has been thought desirable to institute a broader system to enable the workers in the company to share in the values which they are helping to create. Accordingly, a plan has been arranged by which the company carries common stock for certain workers desiring to subscribe

for same. This stock was purchased by the company in the open market and sold to the workers at cost and is carried for them by the company. This will enable a large number of workers to become interested in the stock of the company and, it is believed and hoped, will stimulate still further their zeal and loyalty.

CONCLUSION.

There is every indication of our company doing in the present year a business even larger than in the past, and, while the uncertainties of trade are greater than in normal times, we look for satisfactory results.

It again gives me pleasure to refer to the continued fidelity and ability shown by the officers, heads of departments, our Far Eastern and foreign staffs, and other employes of the company and its subsidiaries.

Respectfully submitted,
SAMUEL P. COLT, President.

THE TREASURER'S REPORT.

UNITED STATES RUBBER CO. AND SUBSIDIARY COMPANIES.

Consolidated General Balance Sheet, December 31, 1917.

ASSETS.

Cash	$9,463,833.51	
Accounts receivable	36,313,607.21	
Notes and loans receivable	2,056,906.30	
Manufactured goods and material	72,440,170.37	
Total current assets		$120,274,517.39
Securities, including Liberty Bonds, and stock of United States Rubber Co., held by subsidiary companies		7,937,920.06
Property, plants and investments including rubber plantations		128,105,825.80
Prepaid and deferred assets		1,257,518.44
Total assets		$257,575,781.69

LIABILITIES, RESERVES AND CAPITAL.

Accounts payable—merchandise	$8,548,083.99	
Acceptances payable for importations of crude rubber	1,877,676.59	
Accrued current liabilities, taxes and interest	5,249,718.05	
Notes and loans payable	19,430,955.00	
Total current liabilities		$35,106,433.63
United States Rubber Co. first and refunding mortgage 5 per cent gold bonds, due 1947	$60,000,000.00	
Canadian Consolidated Rubber Co., Limited, 6 per cent gold bonds, due 1946	2,600,000.00	
General Rubber Co. 5 per cent bonds, due December 1, 1918	9,000,000.00	
Underlying bonds	$24,169,000.00	
Cash deposited to provide for same	24,169,000.00	71,600,000.00
Total liabilities		$106,706,433.63
General reserves	$3,072,169.61	
Insurance funds reserve	$1,316,528.93	
Employes' accident fund reserve	485,323.37	1,801,852.30
Reserve for depreciation of property and plants		7,707,890.83
Reserve for January dividend on preferred stocks		1,240,498.00
Total reserves		13,822,410.74
Capital stock, first preferred	$61,722,200.00	
Capital stock, second preferred	403,600.00	
Capital stock, common	36,000,000.00	
Minority—Canadian Consolidated Rubber Co., Limited, stock	320,655.00	
Total capital stock	$98,446,455.00	
Fixed surpluses—subsidiary companies	$6,709,275.22	
Surplus	31,891,207.10	38,600,482.32
Total capital stock and surpluses		137,046,937.32
Total		$257,575,781.69

CONSOLIDATED STATEMENT OF EARNINGS.

Total sales		$176,159,694.30
Cost of manufacture, selling, general expenses and taxes		144,916,640.69
Operating profits		$31,243,053.61
Cash discounts allowed customers for prepayment, net	$4,416,943.50	
Deductions for bad debts	607,528.74	5,024,472.24
Net gain on sales		$26,218,581.37
Income charges, net		4,294,617.86
Net income before interest		$21,923,963.51
Interest charges net		3,117,856.99
Net income for period		$18,806,106.52
Reserved for Federal income and excess profits and Canadian business profits taxes		3,465,529.89
Net profits for period		$15,340,576.63
Dividends—United States Rubber Co.		
1st preferred 8 per cent	$4,937,154.00	
2nd preferred 6 per cent	24,216.00	
Dividends to minority stockholders of subsidiary companies	20,692.50	4,982,062.50
Surplus for the period		$10,358,514.13
Surplus beginning of period		28,479,134.64
Total		$38,837,648.77
Deductions from surplus		6,946,441.67
Surplus December 31, 1917		$31,891,207.10

Respectfully submitted,
W. G. PARSONS, Treasurer.

BOARD OF DIRECTORS INCREASED.

At the annual meeting of the United States Rubber Co., held March 19, amendments to the by-laws were adopted, and the number of directors increased from 21 to 24, as follows:

James S. Alexander, New York City.
Walter S. Ballou, Providence, Rhode Island.
James C. Brady, New York City.
Nicholas F. Brady, New York City.
Middleton S. Burrill, New York City.
Samuel P. Colt, Providence, Rhode Island.
Harry E. Converse, Boston, Massachusetts.
Edgar B. Davis, Brockton, Massachusetts.
James Deshler, New Brunswick, New Jersey.
James B. Ford, New York City.
James Newton Gunn, New York City.
Francis L. Hine, New York City.
Ernest Hopkinson, New York City.
Henry L. Hotchkiss, New Haven, Connecticut.
William S. Kies, New York City.
Lester Leland, Boston, Massachusetts.
Nathaniel Myers, New York City.
Samuel M. Nicholson, Providence, Rhode Island.
Raymond B. Price, New York City.
Homer E. Sawyer, New York City.
Charles B. Seger, New York City.
William H. Truesdale, Greenwich, Connecticut.
Theodore N. Vail, Boston, Massachusetts.
Elisha S. Williams, New York City.

Of these Messrs. Myers, Hopkinson and Gunn are new members. Mr. Myers has been chief resident counsel for the company for ten years. Mr. Hopkinson was a director and vice-president of the Rubber Goods Manufacturing Co., when the United States Rubber Co. acquired that branch; his specialty is tires, to which he has devoted the greater part of his attention for twenty years, from the standpoint of the patent lawyer and expert as well as from the practical end. Mr. Gunn is also president of the United States Tire Co. and in charge of the commercial end of the tire division.

DATE OF ANNUAL MEETING CHANGED.

The date of the annual meeting of the company was changed by amendment of the by-laws to the third Tuesday in April.

EXECUTIVE COMMITTEE AND OFFICERS.

The board of directors of the United States Rubber Co. met March 21 for organization and elected the following executive committee, officers, and operating council for the ensuing year:

EXECUTIVE COMMITTEE.

Samuel P. Colt, James B. Ford, Lester Leland, Walter S. Ballou, Nicholas F. Brady, Charles B. Seger.

OFFICERS.

Samuel P. Colt, president; James B. Ford, vice-president; Lester Leland, vice-president; Homer E. Sawyer, vice-president in charge of footwear division; Elisha S. Williams, vice-president in charge of mechanical division; W. G. Parsons, comptroller and treasurer; W. H. Blackwell, assistant treasurer; Samuel Norris, secretary; John D. Carberry, assistant secretary; H. B. Hubbard, assistant comptroller; W. O. Cutter, assistant comptroller; George E. Smith, auditor.

OPERATING COUNCIL.

James Newton Gunn, chairman; Homer E. Sawyer, Elisha S. Williams, Ernest Hopkinson, Theodore Whittelsey.

ANNUAL MEETING OF THE B. F. GOODRICH CO.

At the annual meeting of the stockholders of The B. F. Goodrich Co., held at the office of the company in New York City, March 13, Waddill Catchings, of the firm of Goldman, Sachs & Co., and F. C. Van Cleef, secretary of the company, were elected directors in the place of Henry Goldman and F. A. Hardy, both of whom are retiring from active business connections. There were no other changes in the old board, consisting of eighteen directors.

At the special meeting of the stockholders, which followed the annual meeting, the action of the directors at the quarterly meeting held last January, providing for the retirement of $500,000 of preferred stock was ratified and provision made for its cancellation in accordance with the provisions of the certificate of incorporation of the company.

At the meeting of the directors which followed the stockholders' meetings, all the former officers of the company were re-elected. In addition, H. K. Raymond, W. O. Rutherford, W. C. Geer and A. B. Jones were elected second vice-presidents; H. C. Miller was elected manager of tire sales, and W. H. Yule, manager of mechanical goods sales.

The executive committee of the directors for the coming year consists of B. G. Work, H. E. Raymond, H. K. Raymond, W. O. Rutherford, W. C. Geer, A. B. Jones and L. D. Brown. E. C. Shaw has requested to be relieved of active participation in the management of the company's business, but will continue as vice-president in an advisory capacity.

A. B. Jones.

W. O. Rutherford.

H. K. Raymond.

BOONE TIRE & RUBBER CO. PROGRESSING.

F. A. Seiberling, president of the Goodyear Tire & Rubber Co., Akron, Ohio, has been elected president of the Lincoln Highway Association, of which he has been a director for the last four years. A 17-mile strip of the transcontinental highway built by this association just west of Salt Lake City, Utah, and known as the "Seiberling section," is an evidence of his generous support of this great project.

Mr. Seiberling has been in close touch with the Government's war program of late, and is alive to the importance of the Lincoln Highway in the great transportation problems that must be solved to make the government program a success. In inaugurating a regular motor-truck freight service between Akron, Ohio, Goodyear, Connecticut, and Boston, Massachusetts, nearly a year ago, operating over the Lincoln Highway from Pittsburgh, Pennsylvania, to New York City, his company became one of the pioneers in long-distance overland hauling, and was largely instrumental in inducing the Government to send army trucks, as fast as constructed, under their own power to eastern seaports for shipment to France.

A train of thirty army trucks is now leaving Detroit daily, all of which are operating over the Lincoln Highway, despite heavy snows and extreme cold weather. Hundreds of new commercial vehicles for eastern business firms are also being delivered in the same manner because of railway congestion, lack of rolling stock, and priority orders favoring food, fuel and munitions. Thousands of tons of important raw and finished materials are likewise being transported between important cities along the route.

The Lincoln Highway Association is alive to the vital importance of this great roadway as a war necessity. Shortages of labor and materials will affect its big building program somewhat, yet it is expected that approximately $4,000,000 will be expended this year in actual road work.

BOONE TIRE & RUBBER CO. PROGRESSING.

Boone Tire & Rubber Co., Chippewa Falls, Wisconsin, announces that its plant at Sycamore, Illinois, has resumed operation after a short shut-down due to lack of coal. The Chippewa Falls plant is now practically completed and equipped, with the exception of the mills and drives which are expected shortly.

The company states that the recent bankruptcy proceedings in which it was involved had no reasonable basis and were brought by a former employe. The total amount of the claims made was under $3,000, while the assets of the company, as shown by its annual report, amount to $259,275.18, against total liabilities of $77,655, which latter sum has since been reduced to about $65,000.

THE LANCASTER TIRE & RUBBER CO. BRANCHES.

The Lancaster Tire & Rubber Co., Lancaster, Ohio, has established the following factory branches since the reorganization of the company and the opening of its general office in Columbus, Ohio: 168 East Long street, Columbus, Ohio, E. H. Olimb, district manager; 4616 Euclid avenue, Cleveland, Ohio, R. P. Johnson, district manager; 1451 Van Ness avenue, San Francisco, California, C. E. Glafke, district manager; 1534 Broadway, Seattle, Washington, E. K. Allen, district manager.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE opening of the new general office building of the Mason Tire & Rubber Co. at Kent was made the occasion of a jollification by the Kent Board of Trade. Members of this organization were taken through the factory and visitors given an opportunity to see the process of making rubber goods. In the office building crude rubber and samples of the finished products of the plant were displayed.

An address of welcome was made by President O. M. Mason. Referring to the rapid growth of the plant, he said that the pay-roll now totals $35,000 to $40,000 monthly. This will increase with the installation of the new machinery now being placed in the factory addition.

Mayor M. L. Davey responded to the address of welcome. Guests were served in the Mason restaurant, and music was furnished by a four-piece orchestra.

* * *

W. A. Cluff, auditor of the Mason Tire & Rubber Co., Kent, has been elected a director of the company and appointed first assistant treasurer. He was formerly with the Union Commercial Bank and the Reserve Trust Co., Cleveland, and subsequently was a public accountant in Cleveland.

* * *

At the annual meeting of the stockholders of the American Rubber & Tire Co., Akron, Ohio, held the latter part of February, the following officers were reelected: Fred H. Snyder, president; J. W. Rock, vice-president, and Henry L. Houk, secretary, treasurer and general manager. The board of directors was also reelected with the addition of Jacob F. Snyder, of Loma Linda, California.

Last year was a most successful one with the company, the sales having increased 286 per cent over those of 1916. During the year the factory building, four stories high, was completed, and the plant is now fully equipped with modern machinery. The company has under contemplation further additions to the plant. William H. Rogers, for the last 16 years superintendent of motive power of the Northern Ohio Traction and Light Co., Akron, Ohio, has been appointed to take entire charge of the engineering department. Mr. Rogers is well known in electrical circles, being associate editor of the "Electrical Railway Journal," and is a member of the Amalgamated Association of Engineers and other technical associations.

* * *

The plant of The Faultless Rubber Co., Ashland, is devoted exclusively to the manufacture of druggists' rubber sundries and specialties, and surgical rubber goods. There are about five

FACTORY OF THE FAULTLESS RUBBER CO.

acres of floor space, all of which, with the exception of a small amount occupied by the general and factory offices, is required by the manufacturing departments, stock-rooms, shipping-rooms, etc.

* * *

Firestone girls played a prominent part in the campaign to raise funds for the new addition to the Akron Y. M. C. A. The girls pledged $5,000 to the fund and when the campaign ended, a total of $5,008 had been secured. Following the campaign a jubilee banquet was held at which President H. S. Firestone and Superintendent R. E. Lee spoke.

* * *

The enterprise of the Firestone Tire & Rubber Co. made it possible to display motion pictures of Canton's parade of 9,000 school children in the interest of War Savings Stamps.

Secretary Wild of the Canton committee had arranged with a large motion picture news weekly to take the pictures, but it was found impossible to make train or trolley connections, so the manager of the company appealed to the film news division of the Firestone Tire & Rubber Co. at Akron to see if they could help. Immediately the company's director of films, H. A. Fargo, and a cameraman rushed to Canton and took several hundred feet of film which have been shown throughout Ohio.

One of the striking features of the parade was the Firestone War Savings bus, a huge decorated truck bearing 15 crippled children and more than a score of little toddlers too small to march.

* * *

Glee clubs in the Akron rubber factories are taking turns in furnishing entertainment to the soldiers, the sick, and those in need of cheering up. The Firestone Male Glee Club recently gave a benefit concert in Kenmore, an Akron suburb, for the Home Guard Association.

* * *

Firestone Giant truck tires equip both front and rear wheels of the 12 new motor street-flushers of the City of New York, each of which weighs 15 tons when loaded with its 1,800 gallons of water. The rear wheel equipment consists of 40 by 14-inch tires and those on the front measure 37 by 7 inches.

* * *

The Goodrich Glee Club is the latest to go to Chillicothe where the soldiers at Camp Sherman were given a splendid concert.

Patients in the Springfield Sanitarium were recently given an entertainment by the Goodrich Male Chorus and the Goodrich Orchestra.

* * *

The B. F. Goodrich Rubber Co., Akron, Ohio, held a convention in Minneapolis, Minnesota, March 16, for the discussion of trade topics, closing with a banquet at the Hotel Radisson in the evening.

* * *

The Mohawk Rubber Co. has established a branch in San Francisco, California, at 1436 Van Ness avenue, under the managership of George R. Cowden, assisted by Robert W. Moore.

* * *

M. E. Mason, secretary and sales manager of The Mohawk Rubber Co., has just completed his twenty-first year at the sales end of the tire business.

* * *

The Mohawk Rubber Co. is cooperating in the sale of Thrift Stamps, which have been placed on sale in the factory at the cashier's window. Many of the employes are buying stamps regularly and the company is attempting to induce all its workers to purchase them each pay day.

* * *

The Akron Rubber Mold & Machine Co., at its annual meeting in February, increased its capital stock from $300,000 to $600,000, and reelected the former officers for the ensuing year. James Cutler, formerly with the Diamond Rubber Co. and The B. F. Goodrich Co., was chosen as factory manager. The business transacted during 1917 was greater than during any other year in the history of the company.

The Akron Rubber Mold & Machine Co. announces the organization of the Portage Foundry Co., capitalized at $150,000, with the following officers: W. E. Wilson, president; S. W. Harris, vice-president, treasurer, and general manager; G. F. Hobach, secretary. James Lanigan, of Detroit, Michigan, who has had years of experience in foundry work, is foundry superintendent.

* * *

The General Tire & Rubber Co. has made the following recent appointments: H. E. Taylor, formerly representative in Indiana and Illinois, Chicago district manager, 1120 Michigan avenue, Chicago, Illinois; Howard F. Smith, special representative; C. H. Bemis, succeeding H. E. Taylor, representative in Indiana.

* * *

The Rubber Products Co., Barberton, has opened a direct branch at 243 West 55th street, New York City, with W. E. Lake as branch manager, and has obtained authorization to do business in the State of New York.

* * *

The Falls Rubber Co., Cuyahoga Falls, has increased its capital from $500,000 to $1,000,000, offering the new stock to stockholders on the basis of their holdings at the time the increase was made, February 5. The daily production of the company is 50 to 75 cord tires, more than 300 fabric tires, and about 400 green and red inner tubes. The officers are: M. J. O'Donnell, president; W. S. Bailey, vice-president; G. F. O'Donnell, treasurer; H. L. Cole, assistant treasurer; O. C. Nelson, secretary.

* * *

The Star Rubber Co., Akron, at its annual meeting elected the former directors as follows: R. L. Robinson, Francis Seiberling, L. H. Firey, O. L. Weaver, and F. J. Gostlin. The officers were also reelected: L. H. Firey, president and treasurer; R. L. Robinson, vice-president; O. L. Weaver, secretary and sales manager; F. J. Gostlin, superintendent. The sales of the company during the ten months of 1917 after the manufacture of tires and tubes was begun amounted to $608,762.12, while those based on contracts and reports for the coming year are estimated at approximately $2,000,000. The company plans to install equipment to raise the daily production to 500 tires and 500 tubes at an early date.

* * *

Concrete proof that the automobile industry is to have a banner year in 1918, the war notwithstanding, is presented by the departure from Akron of three trains of 206 carloads of tires from the Diamond Rubber Co. These tires, worth over $4,500,000, are for concerns who have faith in the future of the automobile trade industry. Large quantities were destined for New York, Philadelphia, Chicago, the South, West and Far West. Some jobbers whose confidence was strong and volume of business large ordered five carloads.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

BOSTON'S automobile show, held the first part of last month, was very successful, both as an exhibition and as a sales promoter, and the exhibitors, as a rule, seem to be well satisfied with the amount of business resultant therefrom. Certainly there appears to be plenty of money for the purchase of motor cars, and an increasing willingness on the part of business houses to invest in motor trucks and other self-propelled vehicles.

This year there were more automobile exhibits than ever and possibly fewer accessories. In any event, fewer articles were shown of which rubber was an integral part than in any previous motor exhibition held in this city. Several tire repair outfits were shown, some fabrics for tops (which, however, contained no rubber) and also one or two tire fabric products, but nothing in these lines especially new to readers of THE INDIA RUBBER WORLD.

The Doughty Tire Co., Boston, exhibited a roll of its special molded fabric as well as some of its tires, which were described in THE INDIA RUBBER WORLD of January 1, 1915, and February 1, 1916, and which are being rapidly placed upon the market. Another specialty shown, which was described in this publication in the issue of March 1, 1917, is the Brophy pneumatic cushion inner tube, a molded rubber core having a series of airtight cells or compartments. The company exhibited the fillers as completed and also in sectional parts, showing construction and method of manufacture, and also had on view a tire which had given 11,000 miles of service and was still usable.

Another inner tube, the Sternwear, was displayed by the Sterns Tire & Rubber Co., New York City. This tube is much heavier than the usual inner tube, and contains a double reinforcement of fabric. Several advantages are claimed for this tube—less air pressure necessary, self-sealing in case of puncture, and long service.

* * *

The Chelsea Rubber Waste Co., 34 Arlington street, Chelsea, Massachusetts, is building an addition to its plant in order to take care of growing business.

* * *

Isaac Crocker, who operates the Crocker System of Rubber Stores in various New England cities, tendered a dinner to a party of 125 employes and guests in honor of the completion of a quarter-century of service by Albert H. Bloss, manager of the Worcester Rubber Co., and Fred A. Jewell, manager of the Lawrence Rubber Co., two valued employes. The affair was celebrated at the United States Hotel in this city on March 3. Several members of the trade were guests of honor, among them Charles A. Coe, United States Rubber Co.; William E. Rowe, American Rubber Co.; Ellsworth E. Leach, Goodrich Rubber Co.; and Frank G. Burgess, Hodgman Rubber Co.

Henry J. Callahan, manager of the Salem Rubber Co., was an excellent toastmaster. A pleasing function was the presentation to Messrs. Bloss and Jewell of diamond-studded tie clasps from Mr. Crocker, while the employes of the Crocker stores presented to Mr. Jewell a handsome loving-cup and to Mr. Bloss a diamond stick-pin, the presentation addresses being delivered by Erastus E. Dorman of the Haverhill Rubber Co. The menu card was elaborate and contained a list of the employes attending, together with the date of the entrance of each into the service of the Crocker System, a record which speaks eloquently for both employer and employed.

* * *

The annual report of the statistics of manufacturers of Massachusetts for 1916 just published, gives some interesting figures of the rubber industry in this state. The arrangement is not altogether satisfactory in details, for the reason that in some tables the figures are given separately for "rubber boots and shoes," and "rubber goods, exclusive of rubber boots and shoes." It is a simple matter to add these two items, where both appear in the same table, but in some tables the former is not mentioned, and therefore the statistics are either incomplete, or the rubber boots and shoes are included with "boots and shoes" which term ordinarily means, and in every case in this report comprises, leather footwear.

But in either case, Massachusetts shows up well in the rubber business. There are eight rubber footwear concerns, and 38 in other rubber lines in the state, with an aggregate capital of nearly $51,500,000, employing 20,000 wage earners, and producing $64,000,000 worth of goods in 1916. It is to be noted that the capital employed and the product is almost exactly 50 per cent for boots and shoes and 50 per cent for all other rubber goods.

The rubber shoe workers were busy the entire year, the mills being in operation an average of 296.6 days in 1916, and this means (deducting Sundays and holidays) only about 10 working days lay-off, which is usual in summer. During the year employes were paid, in wages, $6,546,730. The other rubber goods factories, 38 in number, ran 289.9 days, the wage earners being paid $4,708,921. It is worthy of notice, in passing, that while 905 men were paid wages of $25.00 or over a week, just one woman, in a rubber footwear factory, received so high a weekly wage.

The export figures, though incomplete, show a high percentage of gains for the rubber industry.

Rubber goods, exclusive of rubber boots and shoes, were exported to the amount of $513,243 in 1915, and rose to $1,001,277 in 1916, a gain of over 95 per cent. It is a disappointment not to be able to add to this the figures of the exportation of rubber footwear, which were certainly very considerable.

It is interesting to note the increase in the total products of all manufactures of the cities having extensive rubber industries. Boston naturally heads the list with a gain, in round numbers, from $272,000,000 in 1915 to $353,000,000. Cambridge jumped from $58,400,000 to $75,750,000. Chicopee's advance was from $30,300,000 to $42,400,000. Chelsea showed a gain from $17,300,000 to $21,200,000. Malden's increase was from $9,800,000 to $11,500,000 and Melrose's from $3,000,000 to $3,380,000. Watertown, which has one of the largest rubber factories in the country, is not represented in the list of 36 cities showing the greatest percentage of gains in total product.

It is to be hoped that in future compilations no such omissions as those noted will be made. But even these incomplete figures serve to show the importance of the rubber industry in the Old Bay State.

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The foundation is now well under way for the new building at the Hood Rubber Co. plant in East Watertown. The building will be 208 feet long and 64 feet wide, five stories high, and will cost approximately $165,000. It is destined for storage and manufacturing.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE most interesting and important occurrence in connection with the rubber industry of Rhode Island in many years was the announcement made about the middle of the past month that the United States Rubber Co. had purchased the plant of the American Locomotive Co. on Valley street, Providence, one of the largest manufacturing plants in this state. It is understood that the purchase price was something under half a million dollars, the assessed value being $391,220 and the estimated cost of duplication at present prices not less than $750,000. The property consists of about ten acres of land, with extensive buildings, centrally located in the city of Providence, and adjoins the Revere tire plant of the United States Rubber Co. The locomotive company had no further use for the plant, having abandoned its automobile business.

President Colt states that it is the intention of the United States Rubber Co. to equip immediately, at an expense of several million dollars, the principal buildings which are well adapted to the manufacture of truck tires, thereby greatly increasing its production of large-sized tires, both solid and pneumatic, the demand for which has been considerably augmented as a result of the war. There are several large structures on the property, containing 245,848 square feet of floor space, the main building being of brick, three stories high, 63 by 493 feet. One of the one-story buildings will probably be raised to two or three stories and used for the manufacture of balloons for the Government. New buildings will be erected on vacant portions of the plot as the need for them arises.

When the plant is in full operation at least 3,000 and possibly 5,000 hands will be employed, while the value of the output will be between $15,000,000 and $20,000,000 annually.

* * *

George Schlosser, vice-president of the National India Rubber Co. and general factory manager of the United States Rubber Co.'s boot and shoe plants in Massachusetts, Rhode Island and Connecticut, has been confined to his home, 530 South Main street, Woonsocket, for more than a fortnight. While his condition is not serious, it is expected that he will not be out again before the first of April.

* * *

The DeWolf Inn, which has been leased by the National India Rubber Co., at Bristol, for the last two years or more as a boarding place for the women employes of the plant, has recently been purchased by the United States Rubber Co. It is intended to make important changes in the building so as to afford better accommodations.

* * *

It is interesting to note at this time that large additions, alterations and improvements are being made at the plants of the National India Rubber Co., at Bristol, the Narragansett Rubber Co., also at Bristol, and the Bourn Rubber Co., the Revere Rubber Co. and the Mechanical Fabric Co., all of Providence, to meet the increasing requirements of the present time.

* * *

With the coming of spring weather, work on the enlargement and betterment of the plant of the National India Rubber Co. has been revived and considerable progress made during the last month. This is especially true of the large addition to the shoe division. This brick structure, 255 feet long and 60 feet wide, three stories high with basement, will be ready for occupancy about the middle of May. The completion of this addition will result in a great increase in the present output of rubber footwear, which is about 53,000 pairs daily. At present there are 4,300 persons employed by the company.

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Under the auspices of the welfare movement for the benefit of the employes, the above company has started classes in personal efficiency in which 50 men and women employes of the corporation have enrolled for an eighteen-week course. The company pays one-half the cost.

* * *

Rehearsals are being held by employes of the National India Rubber Co. for the big Black Face Minstrel Show, to be given in the Pastime Theatre on April 17 and 18, under the auspices of the company's orchestra, the proceeds to be devoted to the LeBaron Colt Memorial Ambulance Fund.

* * *

Work on the new building and additions to the plant of the Bourn Rubber Co., Providence, is progressing rapidly and it is expected that occupancy will follow in a short time. The company has been increasing its working force and has ordered considerable new machinery and equipment. Large orders have been received recently on tennis shoes and the company has called for additional help.

* * *

The Narragansett Rubber Co., Bristol, is being operated on full time, with plenty of orders on hand. It has posted notices in its factory, stating that it will continue under its present management, and that there is no foundation whatever for the rumor that the United States Rubber Co. has made negotiations to take over the plant.

* * *

Lynn Rubber Manufacturing Co., 580 Washington street, Lynn, Massachusetts, has purchased two acres of land at Warren, Rhode Island, adjacent to the New York, New Haven & Hartford railroad, where it will erect a new factory as soon as the

weather permits. The first unit will be one story high, of brick and concrete, 75 by 120 feet, to provide for immediate requirements of the company's rubber mill. The Lynco Arch Cushion Department has already moved to Warren, occupying rented space.

* * *

The Davol Rubber Co., Providence, reports a large volume of orders in all departments, and finds itself greatly handicapped by an unusual shortage of help. The company is calling for boys to learn the business and for young men in the stock room.

* * *

Upon the petition of Newton P. Hutchison, of Providence, the Tayson Rubber Co., a Rhode Island corporation, has been dissolved by a decree of the Superior Court.

* * *

The raincoat factory of the Newark Rubber Co. is making extensive additions to its plant equipment. Its force of young women has recently been nearly doubled in every department.

* * *

The Crompton Co., at Crompton, is busily engaged on a large contract for velveteen for the Goodyear Tire and Rubber Co., Akron, Ohio, to be used in the manufacture of gas masks.

* * *

The Hayward Rubber Co., Inc., has leased from the National Realty Co., for eight years from March 1, 1918, with the privilege of an additional five years, the store occupied by the corporation at 85 Washington street, Providence.

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The Lee Tire & Rubber Co. of New York, Inc., has opened salesrooms at 151 Broad street, Providence, with A. E. Massie as manager.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

ALL the rubber companies of Trenton, especially tire manufacturers, are very busy at this time and are looking for a good summer. Several of the Trenton plants are working on large government orders which alone will keep the factories busy for some time. John S. Broughton, president of the United & Globe Rubber Manufacturing Cos., who is the fuel administrator for Mercer and Burlington Counties, reports that the rubber plants now have a fair supply of coal on hand, which, though not as large as in former years, is believed to be enough to carry the plants along.

* * *

The Zee Zee Rubber Co., which recently erected a new plant at Yardville, three miles from Trenton, is so busy that a big night force will be employed. The company is seeking men for nearly every sort of work in its tire building and tube making departments. It is announced that there are enough orders on hand to give both night and day shifts at least two years' employment.

* * *

The Empire Rubber and Tire Corp. has let a contract to Frederick W. Bechtel for a new garage and small office building on North Clinton avenue.

* * *

The Kelly-Springfield Tire Co., at its annual meeting held March 12, authorized the reduction of its capital stock so that it now stands as follows: six per cent preferred, authorized, $3,990,300; outstanding, $3,509,300; common, authorized, $5,029,900; outstanding $4,907,200. The board of directors was re-elected, as follows: Commissioner of Charities and Corrections Richard Stockton, former Assistant Attorney-General Theodore Backes, and Frank R. Hutchinson, prominent automobile dealer, all of Trenton.

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John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., has been elected a member of the manufacturers' bureau of the Trenton Chamber of Commerce. He will serve for two years and will represent the Trenton rubber manufacturers on the board.

* * *

Quartermaster General C. Edward Murray, prominent in the rubber world, and Governor Walter E. Edge, of New Jersey, have been enjoying a three weeks' gunning trip through the Southern States.

* * *

Harold F. Brooks and Carl P. Virgin have opened a tire agency at 127 East Hanover street, Trenton, and are the distributers of the Thermoid Rubber Co.'s tires and tubes.

NEWS FROM NAUGATUCK, CONNECTICUT.

THE Business Training Corporation of New York is conducting a course in business essentials for the subsidiary companies of the United States Rubber Co. at Naugatuck—Goodyear's Metallic Rubber Shoe Co., Goodyear's India Rubber Glove Manufacturing Co., the Naugatuck Chemical Co., and the Rubber Regenerating Co., with a membership of about 130. The company bears half the expense for each individual who takes the course, and the members are finding it instructive and interesting.

The lecturers thus far have been the following: B. M. Nussbaum, vice-president of the Business Training Corporation, on "Self Analysis"; S. H. Monell, of the Business Training Corporation, on "Physical Fitness"; Professor James E. Lough, Head of the Department of Psychology of New York University, on "Mental Ability."

Myron H. Clark, general footwear factory manager of the United States Rubber Co., will give the fourth lecture of the course on "Character Building."

* * *

Goodyear's Metallic Rubber Shoe Co. has met some of the difficulties in the housing of its employes by building portable houses for some of the foreign help, and by buying land and putting up houses which are sold or rented to any employes who wish to take advantage of the offer.

The service flag of the company now has forty-three stars.

Mr. Willard Hicks, formerly a student at the above company, has been made an ensign in the Mosquito Fleet.

COTTON MANUFACTURERS' CONVENTION.

The twenty-second annual convention of the American Cotton Manufacturers' Association will be held jointly with the annual meeting of the National Association of Cotton Manufacturers in New York City May 1, 2 and 3, at the Hotel Biltmore, where the committee in charge of arrangements has reserved 200 rooms for visiting members. Reservations may be made by application to the American Cotton Manufacturers' Association, Charlotte, North Carolina.

At 8 p. m. May 1, each association will hold a business meeting, followed at 9 p. m. by a "get together smoker." The annual meeting of the National Council of American Cotton Manufacturers will be held at 7 p. m. May 2, and the final business meetings of both associations at 4 p. m. May 3.

The addresses during the convention will include group discussions on the following subjects, with special reference to war-time requirements and conditions: May 2, 10 a. m., "America's Place in the World Trade"; 2 p. m., "Labor Problems in War Time"; May 3, 10 a. m., "War Problems in Industry"; 2 p. m., "Research as an Aid to Industrial Efficiency." Men prominent in the industry or experienced in technical and government work will lead these discussions.

The convention will close with a banquet at 7:30 p. m. May 3, under the auspices of the National Council of American Cotton Manufacturers, with Stuart W. Cramer, vice-chairman, as toastmaster.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

DESPITE some loss of expected supplies due to enemy submarines, the stock of rubber at the ports is large enough to prevent any panic buying and manufacturers are in no hurry to cover their prospective needs. As to the market position and outlook, manufacturers who have taken care of their immediate requirement at 2*s.* 2*d.* per pound are expecting a fall to 2*s.* before long, though they are quite prepared to see a rise later on in the summer when the results of the restriction of tapping the trees begin to be apparent. Of course, if this restriction happened to coincide with the declaration of peace, and Germany came into the market, it is recognized that the producer would be in a very strong position.

PLANTATION RUBBER NOMENCLATURE.

With regard to the nomenclature of plantation rubber, it has been a matter for some comment that the American market employs closer description of qualities and brands than is the case in London. Thus, in a London market report one reads of First crêpe, Crêpe and Ribbed smoked sheet, while the American market report refers to First latex crêpe, *Hevea* crêpe, four varieties of Amber crêpe, four varieties of Brown crêpe and four varieties or brands of Ribbed smoked sheets. If these are all separated from their near associates and sold separately under their distinctive names or titles, it is thought that it would require too much finesse for two people to agree upon. The tendency in England has been in the direction of the reduction of titles. Thus the Rubber Trade Association does not now use the description First latex, and there are now really only two standard qualities, viz., First crêpe and Ribbed smoked sheet. Presumably the shipments of rubber from the Far East are made in a similar way, both to London and New York; that is, the product of a particular article will be marked on the outside of the chests and cases, Crêpe, Pale crêpe or Ribbed smoked sheet, as the case may be, and so any further selection and classification for selling purposes must be made at the ports or salesrooms. This assumption may be erroneous as far as America is concerned, and a selection into the four mentioned brands of Amber crêpe may be made before the rubber is shipped. This is a point on which enlightenment can come only from the American side.

POSITION OF THE TRADE.

The accumulation of the stocks of raw rubber, though due in part to the cessation of shipments to America, is also largely owing to the practical snuffing out of the ordinary trade resulting in the demand made by the government departments for priority. Government work is largely concerned with proofed goods, and every available spreading machine, one may say, is under government supervision. In some cases partly finished contracts have delivery suspended when sufficient stock has accumulated, and the machines are put upon work of greater urgency. Proofed goods, of course, are of different varieties, but a large yardage may absorb only a small quantity of rubber, hence the stocks of rubber are not depleted at the rate which some persons expected on hearing of the great activity of the rubber trade. As things are at present it looks as if some time must elapse before the large amount of ordinary business on home and export account can receive adequate attention. Although rubber is cheap, the cost of other materials continues generally on the upward way. There is considerable concern among proofers at having to pay 4*s.* a gallon for solvent naphtha; moreover, I have heard complaints as to the quality of what is now being supplied, mainly with regard to the smell. Though the sale and distribution is under regulation, the price thus far has not come under control. At the present price the few works which have naphtha recovery plants are of course in a favored position, not only from a cash point of view but by reason of being free from any annoyance due to the smell of the vapor.

Recent events in Russia have negatived the calling up of young Russians in England to the army and apparently much to their gratification. Although the position of affairs cannot be considered satisfactory to British workers, the somewhat serious labor shortage which threatened has been averted.

Branches of the trade which are not concerned with government orders and those which normally depend a good deal upon the export trade cannot be said to be in a state of rush, though absolute stagnation is not heard of. A branch affected by both the above factors is the heel-pad business which is largely carried on in small works that specially catered to the Continental trade. So far the predicted shortage of leather does not seem to have become acute and there has not been in evidence any particular desire to put leather substitutes on the market. I believe that a good deal has been done in this direction in America, though as I have not seen any of the products I cannot say whether fiber or rubber predominates. Rubber soles are being solutioned on to leather boots in England to a small extent, and I am told that it is the aim of the Americans to produce leather-substitute soles which are to be stitched to the uppers and not merely cemented on. This seems desirable as it is not the easiest thing in the world to get a satisfactory union of rubber and leather, though it appears to have been accomplished in the case of the horse pads marketed by a well-known firm.

GAS TRACTION.

The first gas-driven motor omnibus has made its appearance in London and is considered a success. A motor gas equipment association has been formed and has been contemplating, *inter alia*, the standardization of filling orifices, and a diameter of two inches has been decided upon for adoption. It is announced that an arrangement has been made with a textile chemist to test proofed fabrics free of charge to members. Probably the government committee now investigating the subject will recommend a standard test. In the meanwhile somewhat chaotic conditions prevail, a variety of tests being employed yielding conflicting results. It is advisable that this work be done by one or two chemists provided with the necessary apparatus, and the samples to be reported on should bear a distinctive mark rather than the name of the proofing firm. Firms which are feeling their way may show rapid improvement in a short time when they are more certain of the correct lines to go upon. It has not taken long for the demand for gas-bag cloth at any price to be replaced by a demand for a good quality at a competitive price and therefore houses which are really working to capacity on other goods are not now so enthusiastic about the business. The decision of the authorities to refuse a petrol license to gas-driven cars has caused a good deal of uneasiness and has certainly acted as a setback to the popularity of the gas container, as a small amount of petrol was always carried for use in an emergency such as inability to refill when at a distance from home.

SCISSORS.

Needing a new and rather more powerful pair of scissors recently for cutting rubber, I went to a large ironmonger's and got what I wanted, though I was surprised to find that they were made in America and came out of a case marked "shears." I have always held the idea that in steel goods, Sheffield beat the world, and mentioned this to the shopman, who said this is not so in scissors, as the American make is superior. I gathered

that it is not altogether the quality of the steel, but the method of manufacture, or rather the mechanism, which enables the blades to remain true and do better work. Not being an engineer, I am unable to express myself more clearly and can only say that I am quite satisfied with my purchase. Apropos of this, I noticed recently, when looking through the advertising pages of THE INDIA RUBBER WORLD, a picture of special steel rubber shears made in Connecticut. What the opinion of our rubber trade is upon the respective merits of Sheffield and Connecticut scissors I have no idea, but I shall interest myself to find out as opportunity offers.

RUBBER CEMENT.

I note a paragraph in the January issue of THE INDIA RUBBER WORLD, from the Boston correspondent, to the effect that about 5,000 gallons of rubber cement are made daily at Lynn. The naphtha used as a solvent appears from the context to be petroleum spirit, and it is suggested that the shortage in that commodity might be met by the use of benzol after the war if its noxious smell could be got rid of. If by cement is meant rubber solution, I am surprised that benzol should be considered noxious. Petroleum spirit or benzine has presumably been used because it is produced cheaply in America, whereas with us it is an imported product. But apart from that our trade has always preferred coal-tar solvents, and of late years, since the development of the coke-oven business in Germany, I understand that the Germans have largely given up the use of benzine from petroleum in favor of benzol, in some cases using a mixture of the two. I do not know what is the relative toxicity of benzine and benzol vapors, but I believe that the former is always a uniform product, while the character of benzol varies to some extent according to the degree of refinement. Possibly some of the benzol now being so largely and hastily turned out from gas-washing and coke-oven plants in America may contain noxious impurities. The present absence of petroleum spirit from our rubber works is not a matter of any real anxiety as its uses were very limited; the dry cleaner and various grease extractors miss it far more. We are exhorted by economists not to buy new clothes, but to have our old ones cleaned; however, on return they require airing to remove the unpleasant odors.

CHINESE LABOR IN THE PACIFIC ISLANDS.

Mr. Maclaren, chairman of the Upolu Rubber and Cacao Estates, Limited, at the recent annual meeting in London, spoke at length on the labor policy of the New Zealand Government which now controls the Pacific island on which the company operates. The island has recently been taken from the Germans and orders have been given for the imported Chinese labor to be repatriated. This has now largely been carried out and the company finds itself in a serious predicament for want of labor. Mr. Maclaren, who evidently feels strongly on the subject, referred to the Prime Minister's statement that the peoples of captured colonies are to have the right to decide under what flag they shall be governed, and he suggests that if this comes to pass, the planters of Samoa, who form the great bulk of the white population, would not vote for British rule.

BRITISH RUBBER EXPORTS TO THE UNITED STATES, 1916-1917.

Invoices certified at the various American consulates and agencies in the United Kingdom show some increase in the value of the total business in crude rubber between that country and the United States.

The accompanying table gives the ports of origin and the comparative amounts for the years mentioned:

Crude rubber exported to the United States: From—	1916. £.	1917. £.
London	38,412,437	40,271,280
Liverpool	1,759,957	648,270
Hull	661,737	1,484,312
Totals	40,834,131	42,403,862

TRANSPORT OF WASTE RUBBER PROHIBITED.

From December 17, 1917, transport by rail or ship of waste rubber or worn-out rubber goods has been prohibited in Sweden. Apparently the government thus seeks to stop jobbing in waste rubber, and cast-off articles made of rubber. Galoshes are now manufactured from waste rubber and very high prices are demanded and obtained for them.

NEW PANAMA DOCK CHARGES.

The new fiscal code, effective from October 1, 1917, places the dock charges for rubber at all docks of the Republic of Panama, with the exceptions of those in Panama City, at 10 cents per 46 kilos. (A kilo equals 2.2 pounds.)

FOUNTAIN PENS IN FRANCE AND SPAIN.

The American fountain pen is finding increasing favor in France, is preferred to other makes and enjoys a fairly ready sale. Soldiers, especially, appear to be using fountain pens quite generally and there is on the whole a steady and extensive demand for them.

The Malaga (Spain) market is also said to offer a favorable opening for American pen manufacturers.

A list of fountain pen dealers in Bordeaux and Toulon, France, may be had upon application to the Bureau of Foreign and Domestic Commerce or its district and cooperative offices by referring to file No. 96406b; or of Malaga dealers by referring to file No. 96405b.

FRENCH TAXI-CAB COMPANY MAKES TIRES.

Captain P. Van de Velde, of the Compagnie Francaise des Automobiles de Place, Levallois-Perret, France, was in New York City recently on business. The firm he represents is one of the largest taxi-cab companies in the world and, moreover, manufactures its own tires, 400, 90- by 810-millimeter, tires, being the daily product of the factory at Levallois-Perret.

CHINA AS A FIELD FOR RUBBER MANUFACTURE.

Acting Commercial Attaché A. W. Perrin, at Peking, believes that China has great possibilities as a field for rubber manufacture. He suggests that the abundance of crude rubber from the islands south and southeast of China and the inexhaustible supply of cheap labor in this country should make the manufacturing of tires and other rubber articles profitable.

Although there is as yet no promise of any great expansion of the automobile market, the vast number of jinrikshas would provide a good market for pneumatic tires. He furthermore considers that a fair quality of rubber shoes, retailable at a reasonable price, would be assured of a steady patronage, seeing that the Chinese felt-soled shoes of cloth or silk offer but poor protection in wet weather.

THE SOUTH AFRICAN RUBBER MANUFACTURING AND TYRE CO., LIMITED.

In the November, 1917, issue of THE INDIA RUBBER WORLD, mention was made of the establishment of a rubber factory at Johannesburg, South Africa. At this factory, the plant of the South African Rubber Manufacturing and Tyre Co., Limited, mechanical rubber goods of practically every description are made, with the exception of hose and belting. However, the company hopes to turn out these two lines also as soon as machinery is available. Experiments are being conducted with a view to manufacturing asbestos packings.

It is likewise intended to produce automobile tires and tubes in the near future, though, at present, activities in this direction are restricted to making non-skid tread bands.

In the production of the above goods nothing but African-grown rubber is used, excepting in the case of a few high-grade lines which necessitate the importation of Para rubber.

JAPANESE RUBBER NOTES.

By a Special Correspondent.

MANUFACTURE OF RUBBER GOODS IN YOKOHAMA.

IT is reported that two well-known firms, one American and the other Japanese, have established a joint company in Yokohama for the manufacture and sale of rubber goods in Japan, as well as in other far eastern countries. The Japanese company is said to own rubber plantations in the Federated Malay States.

The new concern will have a capital of about $1,200,000. Plans are already in hand for the erection of four-storied factory buildings on the Yokohama site which has been acquired. Japanese engineers representing the new company have visited the United States with the American company's engineers for the purpose of purchasing the most up-to-date machinery and studying the best layout for the plant.

At the outset the general run of mining and industrial goods will be manufactured, as such a line represents the largest volume of business in rubber goods in Japan at the present time. It is in these goods that the American company has built up a considerable trade in Japan during the last few years. The saving effected by manufacturing the goods in Japan itself is estimated at 30 per cent on landed costs. Later on the company intends to manufacture automobile, jinrikisha and cycle tires especially compounded to withstand road conditions in Japan. In addition, rubber boots and shoes, rainproof materials, and vulcanite for battery jars, telephone switchboards, fountain pens, etc., and also druggists' sundries, surgical implements and sporting requisites will be manufactured. American experts will supervise the production of the goods and the American company's patents and processes are to be utilized in the Japanese works.

* * *

Japanese rubber companies do a heavy business in the manufacture of rubber soles which are sold "in the rough" as shown in the picture, having a narrow edge left outside of the sole portion, to which the purchaser sews a cloth upper, thus completing

a low-priced, serviceable shoe. It will be noticed that this sole is digitated for the big toe. The upper is likewise cut so that this toe is separated from the others. The jinrikisha men run mainly on their toes, and this sole shows a greater thickness at the ends of the toes, at the outside of the foot, and at the heel, these being the parts subjected to the heaviest wear. Thousands of these soles are manufactured and find ready sale.

Fuji Company has become a stock company with 500,000 yen capital, under the new firm name of the Fuji Mercantile Co., Limited, 6 Sanchome, Samjukkenbori, Tokyo. Both the firm members and the business policy remain the same. F. M. Hashiguchi is manager.

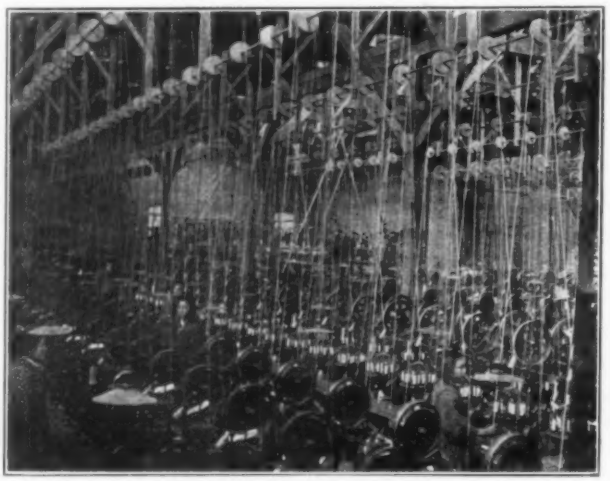
* * *

Almost every day newspapers publish the formation of new Japanese companies which are often subsidized and practically controlled by the government. One of the most important of such concerns is the Naigwai Kigyo Shintaku Kabushiki Kaisha (Home and Foreign Enterprise and Trust Co., Limited). The principal object of this company, which is capitalized at 100,000,000 yen (about $49,500,000), is to finance commercial and trade activities, such as railway, harbor and canal construction, shipping, mining and rubber cultivation, in Japan, China, the South Sea Islands, etc.

This great enterprise has been promoted by the government, which has appointed the president and vice-president and will have the same influence that it has over the affairs of other companies similarly controlled.

* * *

The pioneer rubber factory in Japan is that of the Yokohama Electric Cable Co., Nichome, Ura-rakashima, Yokohama. All kinds of electric cables are manufactured and the plant is now counted among the important cable works of the world. It started in 1896 as a small enterprise with a capitalization of $100,000 which was increased to $150,000 in 1905, to $600,000 in 1906, and to-day is $1,250,000. The profits in the last half of 1916 amounted to $151,000, giving the shareholders a dividend of 20 per cent. For the first six months of 1917 the profits



A BIG BATTERY OF CABLE BRAIDERS.

totaled $215,500, allowing a dividend of 24 per cent. While this increase is due to a certain extent to the present European war, it more largely represents the results of the enterprise of the management in finding new markets and in improving facilities for such increased business, lowering manufacturing costs and, where possible, using domestic rather than imported material, equipment and labor. The value of present contracts will reach $10,000,000, embracing material for government use in electrical developments at home, the great demand from China for telephone wire, from India for electric cables, and from Russia for war equipment. The factories are busy day and night. While the demand in certain of these directions will decrease greatly or cease altogether when the war is over, general director Nakagawa wisely foresees this and is opening the way for exports to Australia, India, the South Sea Islands, China, Manchuria and Siberia, and reports that the prospects are bright.

Baron Kumakichi Nakajima is president of the company, and the efficient business staff includes Masaji Yokoyama and Taiji Komuro.

RUBBER IN CHINA.

According to the report of W. J. B. Fletcher, Acting British Consul at Kiungchow and Pakhoi, there are now in Hainan some two dozen small companies engaged in the cultivation of rubber. The product is said to be of high quality, having brought $110 (Straits currency) per picul (about 46.75 cents per pound, United States currency) at Singapore toward the end of last September. One company at Nodoa employs nearly 500 persons, and has built, at the cost of $150,000, a cart road 40 miles long. This concern has about 10,000 trees on its plantation. A commissioner, sent to Hainan by Chinese merchants in Malacca, declares that these merchants intend to grow rubber in Hainan.

Rubber Planting Notes.

POSITION OF RUBBER COMPANIES IN THE EAST.

RECENT annual reports of rubber producing companies in the East in many instances show that, while the all-in costs have increased, the production and the prices obtained have declined.

The chief causes of the increase are the higher charges for freight and insurance, the advanced prices of many materials necessary for preparing the rubber and greater expense of labor. In the last connection it should be explained that salaries of the European staff have been raised, while in the case of coolie labor the difficulty of securing an adequate and steady supply has often led to the employment of higher-paid Chinese help, and has otherwise augmented labor expenses. However, several companies have been more fortunate in this regard and some, especially those having a greatly increased output, have even been able to reduce estate costs to such an extent as more than to offset the higher freight and insurance rates.

"Reduce the output," which is practically the order of the day at present, was the principle adopted by many producers after the effects of the Excess Profits Duty were felt; Ceylonese planters naturally took a conservative stand in the matter of crops when the British Government virtually prohibited the importation of Ceylon rubber into Great Britain; others, viewing with concern the accumulation of rubber, owing to lack of tonnage on the one hand and the steadily declining market on the other, were influenced to practice caution; the prevalence of rubber diseases forced temporary suspension of tapping operations on larger or smaller areas of a good many estates; and now the recent recommendation of the Rubber Growers' Association, London, in regard to curtailment of output, mentioned in the February, 1918, issue of THE INDIA RUBBER WORLD, will add many more who will decrease their production.

A fairly general tendency has been to refrain from opening up new lands, although some bolder and younger concerns are still rapidly extending their planted areas. This cautious attitude finds further expression in smaller dividends. For while certain companies have been forced to pay smaller dividends, others have done so that could easily have given more, but they were influenced by the uncertainty of the times and the feeling that it would be well to strengthen reserves and thus be prepared to meet future financial contingencies.

AN AID TO USERS OF THE "METROLAC."

A very useful table as an aid to all users of the "Metrolac," the instrument for checking the quantities of rubber latex brought in by coolies, is the Waters calculating table. With the help of this table the considerable amount of routine work involved in calculating from the "Metrolac" readings the quantity of dry rubber brought in by each coolie is obviated, which is no small advantage on estates where the number of tapping coolies runs into hundreds.

THE SPREADING VARIETY OF MANIHOT GLAZIOVII PREFERABLE.

The question concerning the relative merits of the two different types of *Manihot Glaziovii* has been the subject of much discussion and disputation in the past. This debatable point seems to have been finally settled, for results of experiments by Nélis in the Belgian Congo prove that the spreading or "weeping" variety is superior to the erect or "candelabre" type. The first is not only more resistant to wind, but yields rubber greater in quantity than and equal in quality to that of the latter, and is therefore to be given preference if the varieties prove to be fixed, on which point experiments are being made.

BOLIVIAN RUBBER.

Although, according to official statistics, the exports of Bolivian rubber during the year 1916 indicated a considerable increase in value, the weight shows a decrease of 304,264 pounds. The increase in value can be explained by the higher prices ruling in 1916.

The comparative figures of 1915 and 1916 are 11,120,663 pounds, value 10,768,937 bolivianos, and 10,816,399 pounds, value 13,292,246 bolivianos, respectively. Of the 1916 total, 10,768,937 pounds, no less than 91 per cent, or 9,908,329 pounds, representing a value of 12,107,781 bolivianos, was bought by the United States. The rest was purchased by Great Britain, Brazil, France, Uruguay, Argentina, Chile and Spain.

COCHIN CHINA RUBBER PROGRESS DURING 1916.

Rubber plantations in parts of Cochin China suffered to a certain extent from dryness during the early part of 1916, and the amount produced did not reach the estimated gain of 100 per cent over the previous year. However, the quality was superior and the prices higher, so that profits were more than twice as great as in 1915. The prices—in United States currency per metric ton of 2204.6 pounds—at different periods, were as follows:

	Jan. 1, 1916.	July 1, 1916.	Jan. 1, 1917.
Plantation rubber	$1,300 to $1,380	$1,415 to $1,500	$1,550 to $1,650

The quantities and values of plantation rubber exports for three years were:

	1914.		1915.		1916.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
Plantation rubber	182	$152,000	363	$310,000	545	$650,000

The exports of wild rubber have dwindled from $175,000 in 1912, $107,655 in 1913, $11,764 in 1914, and $5,711 in 1915 to practically nothing in 1916.

REPORTS FROM THE PROVINCES.

In some provinces planters have been extending their areas. Thus in Thudaumot applications for concessions were made and land was granted over a total of approximately 2,000 hectares (hectare = 2,457 acres). At the end of 1916 there were 1,593,889 trees, which represents an increase of 573,177 over the number in 1915, no fewer than 250,000 having been added in six months. The estimated extension of the planted area is 1,122 hectares.

Altogether eight plantations reached the bearing stage and the total production for this district during 1916 was 182,526 kilos.

Gia-dinh is another province where good progress has been made. On December 31, 1916, the joint acreage of the plantations here totaled 3,528 hectares, an increase of 275 hectares over the figure at the end of the year before. The production was 189 tons against 56 tons in 1915.

No extension worthy of mention took place in the provinces of Baria, Bien-hoa and Tayninh, though, in the first, three plantations reached the productive stage during the year. The Société des Hévéas de Tayninh, Tayninh, reports an increase in the number of tappable trees. The daily production of latex on the estates of this company amounts to 200 kilos.

YIELDS AND LABOR.

In general, six-year-old trees yield two and one-half to three grams per day from the commencement of tapping operations and it is estimated that the crop per tree during the first year should approach one kilo, if tapping has been carried out for 300 days.

Labor conditions appear to have improved considerably during 1916, none of the serious difficulties experienced in former years having presented themselves. In fact, the relation existing between employer and employe may, on the whole, be termed a harmonious one.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED FEBRUARY 5, 1918.

No. 1,255,354. Valve device for inflatable life-preserving garment. J. J. Tischer, Westbury, New York.

1,255,388. Golf ball. H. Z. Cobb, Winchester, Massachusetts, assignor to Revere Rubber Co., a corporation of Rhode Island.

1,255,411. Air valve for pneumatic tires. L. Greenwald, assignor to the Firestone Tire & Rubber Co., Akron, Ohio.

1,255,654. Tire. S. I. Smith, Dudley township, Hardin county, Ohio.

1,255,754. Tire armor. A. E. Jennings, Owensboro, Kentucky.

1,255,767. Antislipping steel tire. D. S. Mason, Sfickley, Montana.

1,255,800. Ear shield comprising a sack of waterproof elastic tissue. F. K. Schurmeier, St. Paul, Minnesota.

1,255,837. Inner tube. A. E. Henderson, Toronto, Ontario, Canada.

ISSUED FEBRUARY 12, 1918.

1,255,867. Gasoline hose. J. Fentress, Chicago, Illinois.

1,255,876. Cushion tire. J. E. Hale, Akron, Ohio.

1,255,903. Pneumatic tire. W. C. and C. R. Martincau—both of Albany, New York.

1,255,974. Tire with expansible attaching ring. H. Anhaltzer, Pittsburgh, Pennsylvania.

1,255,981. Tire tool. W. F. Brown, Denham Springs, Louisiana.

1,256,006. Storage battery cell cover. B. Ford, Philadelphia, Pennsylvania.

1,256,011. Endless belt and method of manufacture. J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York City.

1,256,015. Inner tube protector. W. C. Guild, Marionville, Missouri.

1,256,188. Anti-snoring device. G. H. Wilson, Louisville, Kentucky.

1,256,316. Demountable rim. J. H. and G. H. Heeren—both of Alcester, South Dakota.

1,256,428. Hot water bottle. W. J. Baumann, Rapid City, South Dakota.

1,256,488. Life buoy. W. A. Smith, Atlantic City, assignor to himself, and S. R. Smith, Pleasantville—both in New Jersey.

ISSUED FEBRUARY 19, 1918.

1,256,520. Hose. E. J. Coughlin, Passaic, New Jersey, assignor to New York Belting & Packing Co., a corporation of New York.

1,256,594. Safety suit for aviators comprising inflatable tubing arranged in coils surrounding the trunk and head of the wearer. A. Rodal, Havana, Cuba.

1,256,630. Girdle corset with elastic insert. R. J. Wright, Springfield, Massachusetts.

1,256,640. Metallic wheel with demountable rim. M. Bachem, Detroit, Michigan.

1,256,649. Clamp for applying rubber soles to boots and shoes. E. F. Berry, Marion, Ohio.

1,256,729. Anti-skidding device for vehicle tires. J. A. Reese, Atlanta, Georgia.

1,256,732. Non-skid device for tires. J. Rowe, Casey, Iowa.

1,256,750. Hard rubber battery jar and process of manufacture. H. Weida, Highland Park, New Jersey, assignor to The India Rubber Co., a corporation of New Jersey.

1,256,763. Tire protector. A. Avery, Mallorytown, Ontario, Canada.

1,256,768. Elastic suspender. O. A. Berman, Cincinnati, Ohio.

1,256,778. Automatic air-brake hose coupling. S. M. Dick, Minneapolis, Minnesota.

1,256,792. Teat cup. S. B. Harner, near Xenia, Ohio.

1,256,831. Applicator. E. Rogers, Barberton, Ohio.

1,256,857. Drainage bottle. W. F. Wofford, Stratford, Texas.

1,256,877. Resilient tire. G. J. Couchois, Rutherford, New Jersey, assignor to Couchois Tire Corp., New York City.

1,257,014. Life-saving suit. J. Niemiec, Newark, New Jersey, assignor of one-half to J. Trendel, Hamtramck, Michigan.

1,257,086. Hot-water boot. H. W Marcellus, Chicago, Illinois.

1,257,091. Shoe with rubber sheet between outer and inner soles. John V. Mattos, Taunton, Massachusetts.

1,257,144. Non-slipping tread comprising an internal metal plate and a covering of rubber above and beneath. F. H. Stanwood, Arlington, Massachusetts, assignor to Stanwood Equipment Co., a corporation of Maine.

1,257,204. Dual solid rubber tire. P. Ernenwein, New York City.

1,257,251. Pneumatic auto tire. F. W. Kremer, Rutherford, New Jersey.

1,257,264. Demountable rim securing device. C. E. McClay, Los Angeles, California.

1,257,296. Lock for demountable rims. R. T. Windt, St. Louis, Missouri.

ISSUED FEBRUARY 26, 1918.

1,257,318. Multiple cushion tire. H. B. Coats, Crawfordsville, Indiana.

1,257,361. Pneumatic tire protector. G. Karl, Peoria, Illinois.

1,257,365. Fountain pen. B. Kumagai, Winslow, Washington.

1,257,366. Solid tire. P. Lavelle, Johnstown, Pennsylvania.

1,257,379. Tread shoe for vehicle wheels. E. Mueller, Athens, Wisconsin.

1,257,409. Inner tube for pneumatic tires. N. H. Shaw, Boston, Massachusetts.

1,257,413. Pneumatic cushioning device for aircraft. T. Sloper, Devizes, England.

1,257,525. Ship protector, with rubber buffers. W. Piasecky, Cambridge, Massachusetts.

1,257,540. Music leaf turner. E. T. Shoblaske, Hartford, Wisconsin.

1,257,606. Demountable rim for vehicle wheels, H. R. Hoyt, Seattle, Washington.

1,257,617. Dress shield. A. M. Lee, Richmond, Virginia.

1,257,673. Resilient wheel with pneumatic tire. M. E. Chamberlain, Lebanon, Missouri.

1,257,763. Metal tread attachment for tires. Yosi Tamaki, Los Angeles, California.

1,257,771. Toilet seat of waterproof material. I. N. Wells, Redondo Beach, California.

1,257,781. Collapsible rim for vehicle tires. C. H. Baer, assignor of fifty one-hundredths to J. T. Parker; twenty one-hundredths to A. L. Holmes, and ten one-hundredths to S. Williams—all of San Francisco, California.

1,257,785. Hose or pipe coupling. A. Benzinger, assignor of one-third to W. M. Schoenle—both of Cincinnati, Ohio.

1,257,804. Fountain pen. W. T. K. Calton, London, England.

1,257,810. Waterproof apron. L. H. Clark, Brooklyn, New York.

1,257,844. Demountable rim for vehicle wheel. J. O. Grady, Birmingham, Alabama.

1,257,845. Demountable rim for vehicle wheel. J. B. Greene, Lowndesboro, Alabama.

1,257,846. Finger shield. J. C. Gregory, New York City.

1,257,857. Armored pneumatic tire. W. G. Hawkins and J. F. Donnellan—both of Chicago, Illinois.

1,257,908. Repair tool for pneumatic tires. W. D. Martin, San Francisco, California.

1,257,944. Abdominal bandage. E. A. Knieriem, New York City; G. P. Hotaling, executor of said E. A. Knieriem, deceased.

THE UNITED KINGDOM.

ISSUED JANUARY 30, 1918.

111,573. Tire filler. F. W. Farr, Reclaim Works, Henry street, Northampton.

111,675. Artificial tooth mounted on a resilient pad of soft rubber. R. M. Withycombe, "Wyoming," Macquarie street, Sydney, Australia.

111,677. Vehicle wheel rim. L. J. B. Fourniaud, 11A, Rue de la Loubière, Marseilles, France.

111,678. Vehicle wheel rim. F. F. Green, South Byrd street, Coalgate, Oklahoma, U. S. A.

111,706. Harness, including an elastic strip, for supporting artificial arms. C. A. Blatchford, 90 Clapham Road, Stockwell, London.

111,712. Endless bands for pneumatic tires and brake linings. H. Frood, Sovereign Mills, Chapel-en-le-Frith, Derbyshire.

111,746. Gas mask for horses and other animals. H. E. Davies, 1 Marlborough Road, Old Kent Road, London.

111,765. Rubber gloves with artificial finger nails. A. F. de Cobain, 27 Boothferry Road, Goole, Yorkshire.

ISSUED FEBRUARY 6, 1918.

111,865. Marine life-saving device. G. W. Magnus, J. O'Banion and E. Parker—all of 1103 Post street, Seattle, Washington, U. S. A.

111,867. Ground sheet adapted to serve as military cape. G. Spencer, Lethbridge House, Lethbridge Road, Southport, Lancashire.

111,869. Cushion tire core. C. N. E. Walke, Watson's Annexe, Apollo Bunder, Bombay, India.

111,929. Rubber-covered electric cables. British Insulated & Helsby Cables, Limited, and J. Brotherton—both of The Cable Works, Helsby, Cheshire.

111,952. Rubber horseshoe pads. E. Sinfield, 11 Grainger Road, Lordship Lane, Wood Green, and W. H. Goldfinch, 33 Hillfield avenue, Hornsey—both in London.

111,999. Rubber covers for gas containers. R. Blakoe, 46 Bryanston street, Marble Arch, London.

ISSUED FEBRUARY 13, 1918.

112,017. Securing strap for a galosh. J. W. Gannon, Broadway, Mangaweka, New Zealand.

112,034. Single-chambered teat cups for milking machines. H. W. Bartram, 586 Bourke street, Melbourne, Australia.

112,041. Connecting uppers to insoles and soles of rubber boots and shoes. British United Shoe Machinery Co., Union Works, Belgrave Road, Leicester; (United Shoe Machinery Co., 205 Lincoln street, Boston, Massachusetts, U. S. A.).

112,042. Rubber backing for feather fabrics. F. Wever, 9 Breitlingstrasse, Stuttgart, Germany.

112,044. Teat or mouthpiece of feeding bottle. F. R. Graham-Yooll, Dulham Towers, East Trinity Road, Leith, Scotland.

112,064. Rubber tire construction. C. S. Stone, 292 Haydons Road, Wimbledon, Surrey.

112,070. Rubber washer for shoe heel. R. Eccles, The Old Cottage, Lytham Road, Warton, Lancashire.

Chemical Patents will be found on page 408. Machinery and Process Patents on page 411.

112,121. Surgical arm support, with elastic strap, L. Leyva, Ambulance Americaine, Lycée Pasteur, Neuilly-sur-Seine, France.

112,124. Medical syringes. I. David, Lydenburg, Kanatta Road, Cinnamon Gardens, Colombo, Ceylon.

112,148. Puncture-preventing band for tires. J. C. Jorgensen, 1 Jyllandsgade, Horsens, Denmark.

ISSUED FEBRUARY 20, 1918.

112,200. Soothing teats. F. R. Graham-Yooll, Dulham Towers, East Trinity Road, Leith, Scotland.

112,233. Cap for motor drivers provided with elastic insertions. A. Kelvie, 127 Upper Grange Road, Bermondsey, London.

112,245. India rubber stopper for feeding bottle. F. R. Graham-Yooll, Dulham Towers, East Trinity Road, Leith, Scotland.

112,248. Collision mat consisting of a number of rubber-edged sections flexibly connected and mounted in a frame fitted with a propeller for forcing the mat to the ship. W. P. English, 36 Lexham Gardens, Kensington, London.

ISSUED FEBRUARY 27, 1918.

112,283. Life-saving suit made of layers of rubber with kapok between. A. C. White, 31 Union street, Oldham.

112,340. Pneumatic tool hose connection. G. Livinstone, Greenock & Grangemouth Dockyard Co., Grangemouth, Scotland.

112,346. Hose coupling. F. Reddaway & Co. and J. Muskett—both of Cheltenham street, Pendleton, Manchester.

112,378. Stopper for a water bag. M. T. Steele, 239 Lorraine street, Brooklyn, New York, U. S. A.

THE DOMINION OF CANADA.

ISSUED NOVEMBER 30, 1917.

180,327. Resilient wheel comprising a rubber tire. S. Johnstone, Chicago, Illinois, U. S. A.

180,420. Cushioning means for airplane cowl openings. H. Allan, Toronto, Ontario, Canada.

180,430. Tire protector to fit within the shoe of a pneumatic tire. H. J. Cohrs, West New York, New Jersey, U. S. A.

180,466. Tire tread. E. C. May, Edmonton, Alberta, Canada.

180,501. Medical appliance comprising a flexible hot water bottle or bag. M. M. Sweet, Chicago, Illinois. U. S. A.

180,551. Balata impregnated belt. W. T. Plummer, assignee of W. H. Bradshaw—both of Philadelphia, Pennsylvania, U. S. A.

180,570. Pneumatic tire. A. Cabana, Montreal, Quebec, Canada.

180,579. Tire inflating valve. F. A. Dean, Alta Vista, Kansas, U. S. A.

180,695. Dust cap for tire valves. A. Schraeder's Son, Inc., New York City, assignee of M. C. Schweinert, West Hoboken, and J. Volckhausen, Weehawken—both in New Jersey—both in U. S. A.

180,701. Tire valve. I. W. Cole and R. B. Chamberlin, assignee of a half interest—both of Plainfield, New Jersey, U. S. A.

NEW ZEALAND.

ISSUED FEBRUARY 24, 1918.

39,080. Boot and shoe sole protector consisting of a filling of india rubber between strips of leather. F. Marsh, 77 Cross Green Lane, Leeds, England.

39,461. Abdominal rupture appliance. G. L. Lloyd, Junction Terrace, Ipswich Road, Brisbane, Queensland, Masseur, Australia.

39,532. Cushion tire. A. J. Ostberg and A. Kenny—both of Judd street, Richmond, Victoria, Australia.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

484,909. (March 24, 1917.) Improvements in vehicle wheels and the like. D. Krussand and A. Steen.

484,916. (March 23, 1917.) Rubber tire for vehicles. L. Poncet.

484,929. (March 24, 1917.) Improvements in wheels for vehicles. M. Archambault.

484,997. (April 4, 1917.) Improvements in elastic wheels for vehicles. L. Anderson.

484,999. (April 4, 1917.) Elastic wheel for vehicles. G. O. Tiberli.

485,049. (April 10, 1917.) Elastic wheel. J. W. Carnahan.

485,148. (August 23, 1916.) Rubber compound. E von Vargyas.

485,180. (April 21, 1917.) Wheel having a rim with a laterally detachable part. J. B. L. Lecadre.

485,261. (April 28, 1917.) Elastic wheel for automobile trucks. International Motor Truck Wheel Corp.

485,336. (May 2, 1917.) Improvements in automobile wheels. J. L. Kunz.

TRADE MARKS.

THE UNITED STATES.

92,283. Representation of the letter C with a conventionalized X within—rubber boots and shoes. Converse Rubber Shoe Co., Malden, Massachusetts.

98,317. The word SUFFRAGETTE—chewing gum. Suffragette Laboratories Co., Cleveland, Ohio.

98,805. The words TIRE TITE—reinforced laminated patches for tires and the like. A. H. Flaig, Minneapolis, Minnesota.

100,062. Representation of a man walking over a shoe—rubber heels. G. E. Keith Co., Brockton, Massachusetts.

100,874. The word CORUSCO—rubber boots and shoes and parts thereof. Converse Rubber Shoe Co., Malden, Massachusetts.

102,356. The word HARVAUTOPSY—surgeons' rubber gloves. J. Schmid, Inc., New York City.

102,963. The word SANTRO—pacifiers. J. Schmid, Inc., New York City.

104,416. The words BUCK SKIN—inner tubes for automobile tires. R. V. Smith, Oklahoma, Oklahoma.

104,671. The word KEEPWELL—druggists' sundries. The Faultless Rubber Co., Ashland, Ohio.

104,672. The word GOODHEALTH—druggists' sundries. The Faultless Rubber Co., Ashland, Ohio.

105,043. The word LABRUCO—rubber drug sundries. The Leyland & Birmingham Rubber Co., Limited, Leyland, England.

105,744. The representation of a label upon which is written the word SUPREMACY—rubber, canvas and leather shoes. R. H. Macy & Co., New York City.

105,905. The word LERCO—syringes and hot water bottles. J. A. Rainville, Lewiston, Maine.

106,584. The words SAMPECK and QUALITONE, one over the other—clothing and raincoats. S. W. Peck & Co., New York City.

107,399. The word TULLAR—dental, medical and surgical rubber goods. E. Pearl, New York City.

107,453. Representation of a facsimile signature of the treasurer of the company within a steering wheel—rubber suction hose and rubber diaphragms. Edson Manufacturing Co., Boston, Massachusetts.

107,902. The letters "V-B"—balata belting. Victor Balata & Textile Belting Co., Easton, Pennsylvania.

107,948. The words PATH FINDER—rubber heels. Pathfinder Rubber Co., Chattanooga, Tennessee.

108,152. The word TRIUMPH—nursing nipples. Harris & Berntz Co., Philadelphia, Pennsylvania.

THE UNITED KINGDOM.

379,851. Bust of a girl against black and white striped background; underneath, the word ELARCO—surgical rubber goods. L. A. Jackson, trading as The London Rubber Co., 46 Lower Clapton Road, London, E. 5.

380,946. The word MIDINETTE—surgical india rubber gloves, india rubber finger stalls, india rubber ice bags (for surgical or curative use), and other similar india rubber goods, all being goods included in Class 11. H. Gordon, 8A, City Road, Finsbury Square, London, E. C. 1.

378,288. The word DURASOL—composition for indurating and waterproofing leather and textile belting and like articles. T. F. Hoare, 82 Earl street, Northampton.

379,143. The word ERGON—sheets, machine belting, tires and insulating material (not included in other classes) made of india rubber, gutta percha or balata, or in which india rubber, gutta percha or balata predominates. Turner Bros. Asbestos Co., Limited, Clod Mills, Spotland, Rochdale, Lancashire.

380,549. The word ZAMA—waterproofing compositions for textile fabrics used in the manufacture of clothing, wings for airplanes and balloons, and for similar purposes. Zama, Limited, 24 North John street, Liverpool; Florin street, Pendleton, Manchester.

380,560. The word ARTOMAC—macintoshes. J. Weinberg & Sons, Aquarock Mills, North street, Cheetham, Manchester.

381,070. The word GALBULOSE—waterproofing compositions for textile and leather goods. Zama, Limited, 24 North John street, Liverpool; Florin street, Pendleton, Manchester.

381,158. Representation of a label bearing the monogram H. C. R.—articles of clothing. The Harrison Raincoat Co., Limited. Ardwick Green North, Manchester.

381,377. The word VAC—golf balls. The Dunlop Rubber Co., Limited, 150-152 Clerkenwell Road, London, E. C. 1.

THE DOMINION OF CANADA.

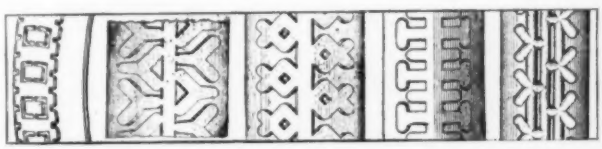
23,028. The words HALF-SOLE TIRE—motor vehicle tires. The International Rubber Co., Denver, Colorado, U. S. A.

DESIGNS.

THE UNITED STATES.

51,722. Rubber ball. Term 14 years. Patented February 5, 1918. R. Eddy, Milwaukee, Wisconsin.

51,815. Rubber heel. Term 14 years. Patented February 26, 1918. L. E. Meyer, Cuyahoga Falls, assignor to Firestone Tire & Rubber Co., Akron—both in Ohio.



51,736 51,746 51,747 51,781 51,829

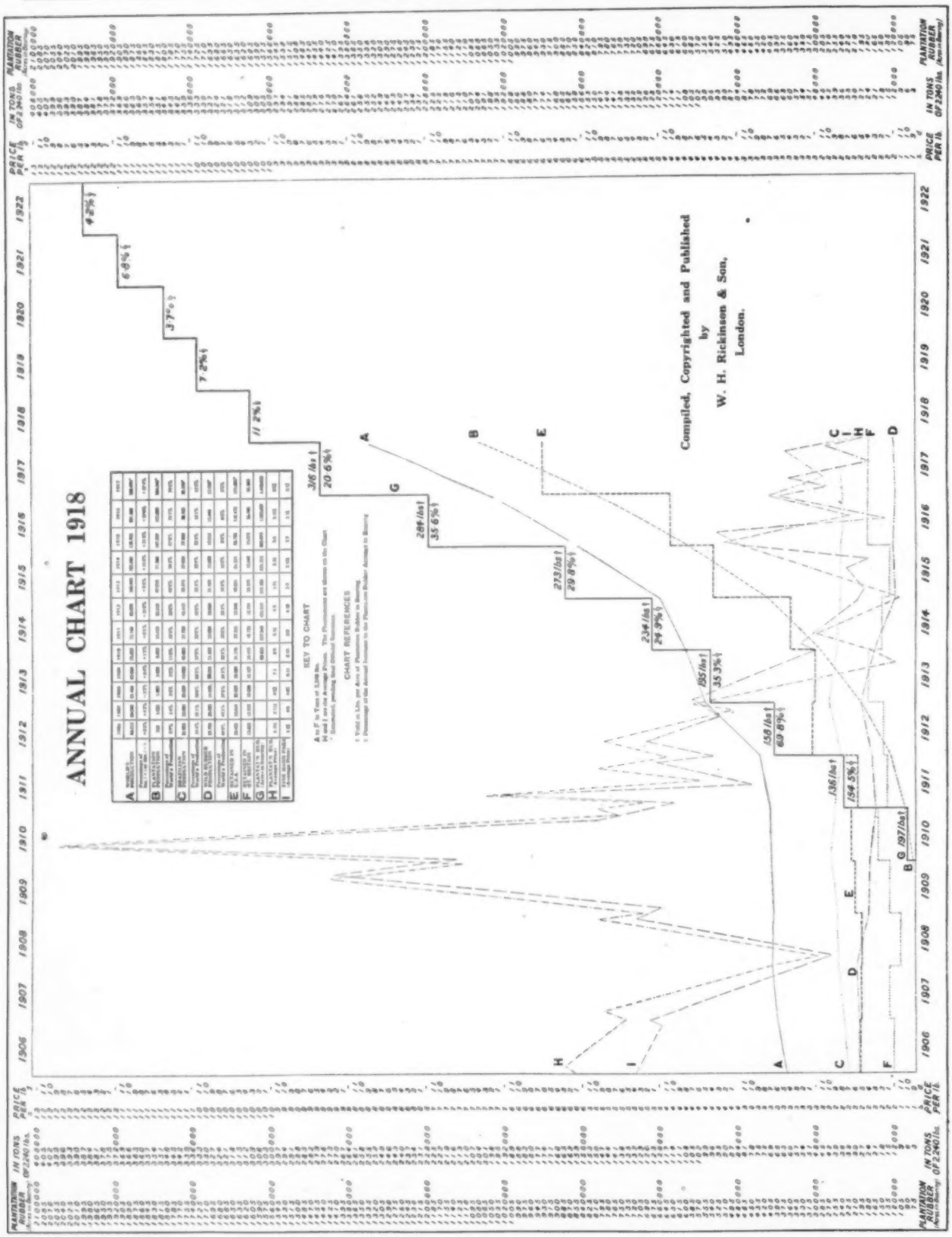
51,736. Automobile tire. Term 14 years. Patented February 5, 1918. C. W. Reynolds, assignor to Para Tire Co. of New York, Inc.—both of New York City.

51,746. Vehicle tire. Term 14 years. Patented February 5, 1918. A. L. Breitenstein, Akron, assignor to The East Palestine Rubber Co., East Palestine—both in Ohio.

51,747. Vehicle tire. A. L. Breitenstein, Akron, assignor to The East Palestine Rubber Co., East Palestine—both in Ohio.

51,783. Tire. Term 7 years. Patented February 19, 1918. J. W. Jones, assignor to Gryphon Rubber & Tire Corp.—both of New York City.

51,829. Tire. Term 14 years. Patented February 26, 1918. T. J. Whalen, New Castle, Pennsylvania.


ANNUAL CHART 1918
KEY TO CHART
CHART REFERENCES
Compiled, Copyrighted and Published by W. H. Rickinson & Son, London.
PRICE PER lb.
IN TONS OF 2240 lbs.
PLANTATION RUBBER
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922

Review of the Crude Rubber Market.

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NEW YORK.

DURING the first two weeks of March the crude rubber market was quiet, with the exception of a little activity caused by contract covering on the part of short interests. The belief that the taking over of the Dutch ships would curtail arrivals at Pacific ports resulted in an active buying movement, about the middle of the month, in which certain importers and manufacturers largely participated. Prices advanced accordingly until the demand was satisfied, when the market quieted down and continued without feature until the end of the month. Values, however, maintained the advances already gained, being supported by a renewed demand from dealers and manufacturers for forward positions. The subsidence of both buying and selling orders, indicated a lack of interest in the firm prices prevailing, and resulted in a quiet market during the last week of the month.

PLANTATIONS. The upward movement in plantation rubber created considerable trading in both spot and future positions, that consisted principally of dealers' business, manufacturers taking only a moderate part. The undertone has been firm, 62½ cents for spot Latex and 63½ cents for Ribs being recorded during the month. March 1, spot Latex was 56 cents and May-June 53 cents. Ribs were 57 cents for spot with May-June positions at 50½ cents. On March 27, spot Latex was 59 cents, and May-June was 54, while Ribs were 60 and May-June positions, 54 cents.

PARAS. Brazilian sorts formed part of the demand in the market activities of the month and were supported by restricted shipments and increased freight rates. On March 1, Upriver fine, spot, was 56 cents, and on March 27 the price was 61 cents.

The other crude rubber grades were fairly active and firm, but without market features worthy of record.

LONDON.

The demand in this market has been generally quiet and the undertone firm. The volume of business transacted has undoubtedly been small and for the most part confined to consumers' requirements, conditions to be expected in view of present unsettled market conditions. Prices have recorded small advances since last month.

STATISTICS. London and Liverpool imports for January were 16,944,000 pounds, value £2,035,284, compared with 6,240,700 pounds, value £796,653, for December.

SINGAPORE.

The market was fairly active during the first part of the month and prices firm. Heavy buying for American account was in evidence at the last two auctions of the month, and prices advanced sharply. The average prices obtained at the auctions of March 2, 9 and 19 were 38.53 cents for Latex, and 35.27 for Ribs; 2,510 tons were sold.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations one year ago, one month ago and March 28, the current date.

	April 1, 1917.	March 1, 1918.	March 28, 1918.
PLANTATION HEVEA—			
First latex crêpe / *Hevea first crêpe	81 @	56 @	58 @59
Amber crêpe No. 1	78 @	49 @	52 @53
Amber crêpe No. 2	77 @	48 @	50 @51
Amber crêpe No. 3	76 @	47 @	48 @49
Amber crêpe No. 4	75 @	46 @	47 @48
Brown crêpe, thick clean	76 @	46 @	47 @48
Brown crêpe, thin clean	77 @	47 @	47 @48
Brown crêpe, thin specky	74 @	45 @	44 @45
Brown crêpe, rolled	64 @	33 @	32 @
Smoked sheet, ribbed standard quality / *Hevea ribbed smoked sheets	81 @	57 @	59 @
Smoked sheet, plain standard quality / *Hevea plain or smooth smoked sheets	79½ @	55 @	57 @
Unsmoked sheet, standard quality / *Hevea unsmoked sheets	77 @	53 @	55 @
Colombo scrap, No. 1	63 @	33 @	35 @36
Colombo scrap, No. 2	61 @	30½ @	33 @34
BRAZILIAN PARAS—			
Upriver fine	76 @	56 @	60 @
Upriver medium	@	50 @	54 @
Upriver coarse	51½ @	33½ @	34 @
Upriver weak fine	53 @53½	44 @	46 @
Upper caucho ball	51½ @	34½ @	34 @
Islands fine	71 @	46½ @	48 @
Islands medium	65 @	37 @	**40 @
Islands coarse	36 @	24 @	23 @
Cametá coarse	37 @	24 @	23½ @
Lower caucho ball	47 @	32 @	32 @
Peruvian fine	73 @	53 @	55 @
Tapajos fine	73 @	53 @	55 @
AFRICANS—			
Accra flake, prime	32 @	25 @26	27 @
Niger flake, prime	32 @33	25 @26	27 @
Benguela, extra No. 1, 28%	40½ @	**29 @28	@
Benguela, No. 2, 32½%	38 @	**28 @29	@
Congo prime, black upper	64 @	46 @	48 @
Congo prime, red upper	59 @	44 @	46 @
Rio Nunez ball	66 @	@	@
Rio Nunez sheets and strings	63 @	**63 @	@
Conakry niggers	66 @	@	@
Massai sheets and strings	62 @	**63 @	@
CENTRALS—			
Castilloa block	@	45 @	43 @45
Corinto scrap	@	34 @	35 @
Esmeralda sausage	49 @	34 @	35 @
Central scrap	48 @	33 @	35 @
Central scrap and strip	47 @	32 @	33 @
Central wet sheet	34 @	26 @	30 @
Guayule	49 @	28 @	25 @30
MANICOBAS—			
Ceara negro heads	47 @48	**33 @	@
Ceara scrap	34 @	**29 @	@
Manicoba special	37 @	38 @	41 @
Manicoba extra	34 @	34 @	37½ @
Manicoba regular	31 @	29 @	32 @
Mangabeira thin sheet	35 @	35 @	36 @
Mangabeira thick sheet	32 @	31 @	30 @
EAST INDIAN—			
Assam crêpe	74 @	**38 @	48 @
Assam onions	72 @	**37 @	48 @
Penang block scrap	34 @	**34 @	38 @
Borneo, No. 2	@	**24 @	@
Borneo, No. 3	@	**18 @	@
BALATA—			
Block, Ciudad Bolivar	67 @	71 @	**72 @
Colombia	@	56 @57	58 @
Panama	@	53 @54	**55 @
Surinam sheet	94 @	88 @	88½ @92
amber	@	**97 @	**97 @
fair average quality	94 @	88 @	88½ @92
PONTIANAK—			
Banjermassin	19 @	13 @	13½ @14
Gutta Siak	20 @21	20 @25	20½ @22
Pressed block	24 @	21 @	21 @22
GUTTA PERCHA—			
Red Macassar	2.25 @	2.20@2.40	2.25@ 2.50

*Rubber Association of America nomenclature.
**Nominal.

RECLAIMED RUBBER.

Reclaimers report a fair volume of business for the past month, considering the transportation difficulties met with in securing supplies and making shipments of orders. Prices have remained firm and practically unchanged, while the general market condition was a little easier than last month.

NEW YORK QUOTATIONS.

MARCH 27, 1918

Subject to change without notice.

Corona No. 30 black	*lb.*	.18	@
white	*lb.*	.20	@
No. 312 hydro-carbon	*ton*	50.00	@
325 hydro-carbon	*ton*	65.00	@
Standard shoe reclaim	*lb.*	.15	@
tire reclaim	*lb.*	.18½	@

MARKET CABLE SERVICE FROM LONDON.

The following market report has been cabled by Aldens' Successors, Limited, London:

	Standard Crêpe.	Ribbed Smoked Sheets.	Market.
February 25	28¼d.	27½d.	Firmer
March 4	29½d.	.....	Firm
March 11	29½d.	29½d.	Steady
March 18	30½d.	30 d.	Firm
March 25	29½d.	29 d.	Quiet and firm

MARKET CABLE SERVICE FROM SINGAPORE.

The following report of the weekly auction held at Singapore has been cabled by The Waterhouse Co., Limited:

Date.	Crêpe. Price per lb.	Smoked Sheet. Price per lb.	Tons Sold.	Market.
March 2 .....*cents*	37.40	34.00	590	Active at lower prices.
March 9	37.83	34.43	975	Firm, but unsettled.
March 19	40.38	37.40	945	Advance caused by heavy American buying.

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

During March the demand for commercial paper has been light, and seems likely to continue so, the best rubber names being quoted at 6¼ to 6½ per cent, and those not so well known 6¼ to 7 per cent.

COMPARATIVE HIGH AND LOW SPOT RUBBER PRICES.

	March.		
Plantation:	1918.[1]	1917.	1916.
First latex crêpe	$0.55 @0.63	$0.81 @0.88	$0.86@0.93
Smoked sheet ribbed	.55½@ .64	.81 @ .88	.85@ .92
Paras:			
Upriver, fine	.56 @ .61	.76 @ .81	.74@ .77
Upriver, coarse	.34 @ .36	.51½@ .54½	.57@ .60
Islands, fine	.47 @ .48	... @ ...	.68@ .71
Islands, coarse	.22½@ .24½	.35 @ .36	.37@ .39
Cametá	.22½@ .24	.36½@ .38	.38@ .41

[1] Figured only to March 27.

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [January 31, 1918]:

The quantity of rubber cataloged for this week's auction was somewhat above the average at 1,450 tons. The sale opened with a fairly good demand at about last week's closing prices, the highest paid for fine pale crêpe being $95, and for ribbed smoked sheet $93 per picul. These figures are $5 and $1 respectively below last week's best. Prices showed an easier tendency as the sale proceeded, and the highest paid on the second day was $93 for crêpe and $92 for sheet. Brown crêpes were $2 to $3 down, while dark and barky crêpes are practically unchanged from last week. The quantity sold was 825 tons.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked	$88@93	1/11 @2/ 0½	37.40@39.53
Sheet, good ribbed smoked	63@88	1/ 5¾@1/11	26.78@37.40
Sheet, plain smoked	83@..	1/ 9⅞@....	35.27@.....
Sheet, ribbed unsmoked	..@..	....@....	.....@.....
Sheet, plain unsmoked	..@..	....@....	.....@.....
Crêpe, fine pale	91@95	1/11¾@2/ 0½	38.68@40.38
Crêpe, good pale	79@90	1/ 9⅛@1/11⅜	33.58@38.25
Crêpe, fine brown	70@79	1/ 7¼@1/ 9⅛	29.75@33.58
Crêpe, good brown	57@74	1/ 4½@1/ 8	24.23@31.45
Crêpe, dark	44@66	1/ 1¾@1/ 6½	18.70@28.05
Crêpe, bark	36@52	1/ @1/ 3⅜	15.30@22.10
Scrap, virgin and pressed	33@46	/11½@1/ 2⅛	14.03@19.55
Scrap, loose	15@20	/ 7¾@ / 8¾	6.38@ 8.50

*Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents].

WORLD'S RUBBER PRODUCTION.

	Plantation.	Brazil.	Other Grades.	Totals.	Percentage of Increase or Decrease.
1900 .....*tons*	4	26,750	27,136	53,890	.....
1901	5	30,300	24,545	54,850	+ 1.7
1902	8	28,700	23,632	52,340	— 4.5
1903	21	31,100	24,829	55,950	+ 6.8
1904	43	30,000	32,077	62,120	+ 11.0
1905	145	35,000	27,000	62,145	+ .004
1906	510	36,000	29,700	66,210	+ 6.5
1907	1,000	38,000	30,000	69,000	+ 4.2
1908	1,800	39,000	24,600	65,400	— 5.2
1909	3,600	42,000	24,000	69,600	+ 6.4
1910	8,200	40,800	21,500	70,500	+ 1.2
1911	14,419	37,730	23,000	75,149	+ 6.5
1912	28,518	42,410	28,000	98,928	+ 31.6
1913	47,618	39,370	21,452	108,440	+ 9.6
1914	71,380	37,000	12,000	120,380	+ 11.0
1915	107,867	37,220	13,615	158,702	+ 31.8
1916	152,650	36,500	12,448	201,598	+ 27.0
1917	204,348	39,370	13,258	256,976	+ 27.4
1918 (est.)	240,000	38,000	12,000	290,000	+ 12.8

Compiled by W. H. Rickinson & Son, London.

PLANTATION RUBBER EXPORTS FROM JAVA.

To—	November. 1916.	November. 1917.	Eleven Months Ended November. 1916.	Eleven Months Ended November. 1917.
HOLLAND:				
Hevea .....*pounds*	.....	.....	239,680	.....
GREAT BRITAIN:				
Ficus	11,117	.....	39,301	12,137
Hevea	828,800	.....	6,608,000	4,827,200
Ceara	2,483	.....	58,449	31,832
Castilloa	5,489	.....	55,940	38,005
Totals	847,889	.....	6,761,690	4,909,174
UNITED STATES:				
Ficus	.....	.....	33,031	12,085
Hevea	2,013,760	2,112,320	15,299,200	29,798,720
Ceara	2,306	6,164	14,542	6,349
Castilloa	.....	.....	17,536	11,651
Totals	2,016,066	2,118,484	15,364,309	29,828,805
SINGAPORE:				
Ficus	6,208	.....	41,703	21,146
Hevea	351,680	591,360	4,135,040	3,485,440
Ceara	13,354	.....	55,898	32,384
Castilloa	1,650	.....	5,819	3,956
Totals	372,892	591,360	4,238,460	3,542,926
OTHER COUNTRIES:				
Ficus	12,074	.....	17,030	.....
Hevea	11,200	60,480	656,320	116,480
Totals	23,274	60,480	673,350	116,480
Grand Totals	3,260,121	2,770,324	27,277,489	38,397,385

IMPORTS OF CRUDE RUBBER AT CEYLON.

DECEMBER 24, 1917-JANUARY 21, 1918.

From—	Pounds.
MALAY PENINSULA:	
Singapore	43,800
Penang	76,320
Port Swettenham	90,990
Port Dickson	44,650
Total	255,760
From—	
INDIA:	
Tuticorin	74,891
Cochin	7,240
Total	82,131

From—	Pounds.
BURMA:	
Rangoon	918
Imports during year 1917:	
From—	
Malay Peninsula	2,324,934
India	1,141,487
Burma and other countries	22,573
Total	3,488,994

EXPORTS OF RUBBER FROM JAVA DURING 1917.

To—	December, 1916.	December, 1917.	Twelve months ended December, 1916.	Twelve months ended December, 1917.
Holland .....*pounds*	101,200	.....	336,600	.....
England	631,400	.....	7,273,200	4,824,600
United States	2,725,800	3,605,800	17,800,200	32,903,200
Singapore	360,800	321,200	4,525,400	3,803,800
Other countries	48,400	66,000	728,200	178,200
Totals	3,867,600	3,993,000	30,663,600	41,709,800
FROM—				
Batavia	2,327,600	2,563,000	20,057,400	24,519,000
Samarang	50,600	6,600	429,000	448,800
Soerabaia	1,441,000	1,416,200	8,789,000	16,205,200
Other ports	48,400	13,200	1,388,200	536,800
Totals	3,867,600	3,993,000	30,663,600	41,709,800

UNITED KINGDOM RUBBER, GUTTA PERCHA AND BALATA IMPORTS, AND EXPORTS, WITH AMOUNT RETAINED, FOR 1917, BY MONTHS.

	Rubber. Imports.	Rubber. Exports.	Rubber. Retained.	Gutta Percha and Rubber. Imports.	Gutta Percha and Rubber. Exports.	Gutta Percha and Rubber. Retained.
January .....*tons*	7,976	5,723	2,253	340	11	329
February	7,305	6,492	813	410	33	377
March	8,903	4,259	4,644	425	20	405
April	10,110	8,401	1,709	407	5	402
May	7,190	6,245	945	154	9	145
June	7,677	4,912	2,765	201	21	180
July	7,080	3,366	3,714	94	5	89
August	4,352	3,765	587	268	26	242
September	4,702	2,035	2,035	148	12	136
October	4,282	3,698	584	281	21	260
November	5,848	2,014	3,834	526	8	518
December	2,995	1,527	1,468	341	4	337
Totals. 1917	78,420	52,437	25,983	3,595	175	3,420
1916	75,240	48,458	26,782	3,339	280	3,059
1915	78,592	63,520	15,070	3,794	441	3,353

Compiled by Raw Products Co., New York City.

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APPROXIMATE MONTHLY IMPORTATIONS OF PARA RUBBER FOR 1917.

PARAS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals, Cases.
Fine .....*cases*	4,948	6,013	15,403	2,417	2,154	7,713	6,481	1,190	6,163	1,549	6,048	3,712	63,791
Medium	1,454	1,749	1,742	472	594	2,144	579	676	997	263	682	186	11,538
Coarse	3,565	2,759	8,832	2,129	1,828	5,373	2,857	1,900	3,301	1,355	5,393	873	40,168
Caucho	691	1,766	7,236	2,776	2,005	9,512	4,029	2,814	4,212	1,299	2,342	489	39,168
Other grades	1,460	2,348	8,338	2,438	.....	4,691	1,785	167	843	1,700	679	477	24,926
Totals, cases..	12,118	14,635	41,551	10,232	6,581	29,433	15,731	6,747	15,516	6,166	15,144	5,737	179,591

The net weight of the total imports, consisting of 179,591 cases, was **26,739,020** kilos.

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	1916.		1917.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.	POUNDS.	VALUE.
India rubber:				
From—				
France	652,206	$362,372	656,076	$327,998
Netherlands	319,703	274,454	65,484	37,866
Portugal	1,273,530	563,833	3,740,415	1,476,891
United Kingdom.....	58,157,721	39,414,267	71,466,789	48,517,761
Central America.....	1,249,656	573,046	1,253,354	555,707
Mexico	2,545,095	1,053,054	1,263,559	520,512
Brazil	49,281,838	24,589,208	56,982,470	23,678,755
Peru	2,645,000	1,330,990	3,991,477	1,840,514
Other South America....	2,770,102	1,285,528	4,023,489	1,792,515
British East Indies.....	124,323,997	74,675,174	195,325,015	113,480,370
Dutch East Indies.....	26,508,276	15,479,866	59,689,895	36,671,226
Other countries	363,081	143,683	7,180,255	4,320,789
Totals	270,090,205	$159,745,475	405,638,278	$233,220,904
Balata	2,748,207	$1,265,896	3,193,387	$1,607,343
Guayule gum	2,537,167	693,251	4,852,531	1,487,978
*Gutta jelutong.. *free*....	14,724,397	759,205	1,472,330	76,773
dutiable	10,068,423	477,297	23,302,537	1,068,175
Gutta percha	3,176,010	349,727	1,476,426	289,802
Totals	303,344,409	$163,290,851	439,935,489	$237,750,975
Rubber scrap	16,084,653	$1,226,157	22,357,173	$1,717,861
Totals, unmanufactured.	319,429,062	$164,517,008	462,292,662	$239,468,836
Chicle .....*dutiable*	7,250,336	$3,198,153	6,117,922	$3,073,484
MANUFACTURED—*dutiable:*				
Manufactures of india rubber and gutta percha...	.....	$666,339	.....	$765,975
India rubber substitutes...	.....	18,662	.....	44,084
Totals, manufactured	.....	$685,001	.....	$810,059

EXPORTS OF DOMESTIC MERCHANDISE.

	1916.		1917.	
MANUFACTURED—	POUNDS.	VALUE.	POUNDS.	VALUE.
Automobile tires:				
To—				
France	.....	$183,855	.....	$505,482
Russia in Europe.....	.....	944,261	.....	162,214
United Kingdom	.....	5,692,587	.....	1,789,007
Canada	.....	897,212	.....	1,936,284
Mexico	.....	227,981	.....	509,648
Cuba	.....	805,471	.....	1,340,729
Argentina	.....	819,855	.....	1,902,585
Brazil	.....	383,601	.....	657,133
British India	.....	153,589	.....	318,551
Dutch East Indies.....	.....	304,280	.....	492,282
Australia	.....	1,675,343	.....	454,155
New Zealand	.....	982,154	.....	691,880
Philippine Islands	.....	434,551	.....	465,871
British South Africa....	.....	318,542	.....	716,439
Other countries	.....	1,388,661	.....	2,005,974
Totals	.....	$15,211,943	.....	$13,948,234
All other tires.....	.....	$2,517,065	.....	$2,192,259
Reclaimed rubber	5,390,695	807,777	4,526,901	763,210
Scrap and old rubber.....	3,418,884	392,977	3,155,010	361,263
Belting, hose and packing..	.....	3,530,219	.....	4,171,599
Rubber boots .....*pairs*	660,169	1,593,046	1,323,169	3,868,351
Rubber shoes ..... *pairs*	3,002,842	1,486,705	2,043,491	1,218,483
Druggists' sundries	.....	.....	.....	469,284
Other rubber manufactures	.....	8,394,726	.....	7,795,823
Totals, manufactured	.....	$33,934,458	.....	$34,788,506
Fountain pens .....*number*	251,662	$147,587	288,642	$203,590

*Dutiable from July 1, 1916, to October 31, 1917.

EXPORTS OF FOREIGN MERCHANDISE.

	1916.		1917.	
UNMANUFACTURED—	POUNDS.	VALUE.	POUNDS.	VALUE.
Balata	922,301	$389,288	554,515	$328,403
Guayule gum	.....	.....	8,935	2,770
Gutta jelutong	56,000	2,520	575	89
Gutta percha	2,383	2,095	76,858	20,826
India rubber	9,179,017	5,330,100	8,960,044	5,305,289
Rubber scrap and refuse...	.....	.....	18,326	1,171
Totals, unmanufactured	10,159,701	$5,724,003	9,619,253	$5,658,548

	1916.		1917.	
MANUFACTURED—	POUNDS.	VALUE.	POUNDS.	VALUE.
Gutta percha	.....	$352	.....	$10,865
India rubber	.....	33,526	.....	13,601
Totals manufactured...	.....	$33,878	.....	$24,466

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

	1916.		1917.	
MANUFACTURED—	POUNDS.	VALUE.	POUNDS.	VALUE.
To—				
Alaska:				
Belting, hose and packing	.....	$120,719	.....	$159,840
Boots and shoes.....*pairs*	94,952	227,059	96,039	251,477
Other rubber goods.....	.....	47,556	.....	57,525
Totals	.....	$395,334	.....	$468,842
To—				
Hawaii:				
Belting, hose and packing	.....	$81,998	.....	$108,709
Automobile tires	.....	593,777	.....	997,550
Other tires	.....	92,686	.....	103,920
Other rubber goods.....	.....	130,939	.....	250,361
Totals	.....	$899,400	.....	$1,460,540
To—				
Philippine Islands:				
Belting, hose and packing	.....	$65,170	.....	$90,239
Boots and shoes....*pairs*	172,202	122,762	283,897	182,452
Tires	.....	496,925	.....	567,522
Other rubber goods.....	.....	217,170	.....	143,700
Totals	.....	$902,027	.....	$983,913
To—				
Porto Rico:				
Belting, hose and packing	.....	$46,723	.....	$50,448
Automobile tires	.....	537,296	.....	712,052
Other tires	.....	22,950	.....	12,947
Other rubber goods.....	.....	98,138	.....	110,883
Totals	.....	$705,107	.....	$886,330

UNITED STATES RUBBER IMPORTS AND EXPORTS, WITH AMOUNT RETAINED, FOR 1917, BY MONTHS.

	IMPORTS.					EXPORTS.	RETAINED.
	Ceylons.	Paras.	Africans, Centrals and Other Grades.	Guayule.	Totals.	Totals.	Totals.
January..*tons*	12,532	2,123	1,023	110	15,788	813	14,975
February	7,224	1,977	912	49	10,162	360	9,802
March	13,830	3,981	528	277	18,624	527	18,097
April	10,083	2,612	302	153	13,150	330	12,820
May	16,411	994	819	187	18,411	256	18,155
June	14,801	3,746	463	86	19,096	206	18,890
July	9,527	1,889	202	105	11,723	200	11,523
August	15,158	1,760	178	194	17,290	186	17,104
September ..	11,192	2,133	164	175	13,664	200	13,464
October	8,239	1,398	143	120	9,900	250	9,650
November ..	12,479	861	60	211	13,611	300	13,311
December ...	10,589	1,751	234	196	12,770	240	12,530
Totals, 1917..	142,065	25,225	5,028	1,863	174,189	3,868	170,321
1916..	89,481	25,759	5,494	840	121,574	2,738	118,836
1915..	65,754	23,912	7,885	2,189	99,740	2,139	97,601
1914..	36,664	21,110	5,924	762	66,460	2,750	61,710

The United States consumption in 1917 was 170,321 tons, or 66.3 per cent of the world's production.

Compiled by Raw Products Co., New York City.

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the records.

[The Figures Indicate Weight in Pounds.]

PARAS.

February 4.—By the *Sergipe*=Manaos:

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
Hagemeyer & Brunn	67,200	2,240	11,200	56,000	.....	=136,640

February 6.—By the *Curvello*=Para.

Hagemeyer & Brunn	22,400	11,200	44,800	26,880	11,200	=116,480

February 15.—By the *Thelma*=Para.

Hagemeyer & Brunn	11,200	.....	11,200	680	.....	= 23,080

February 15.—By the *Vindeggen*=Para, Manaos and Iquitos:

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
Pell & Dumont	.....	.....	23,000	.....	.....	= 23,000
General Rubber Co.	201,600	.....	120,900	178,500	.....	=501,000
Hagemeyer & Brunn	11,200	.....	44,800	7,800	.....	= 63,800
Comm. Bk. of Span. Am.	*44,664	2,660	42,832	233,394	.....	=323,550
Meyer & Brown	†141,000	.....	55,500	107,200	3,900	=307,600

February 24.—By the *Pocone*=Para:

Meyer & Brown	.....	.....	8,400	.....	.....	= 8,400

March 1.—By the *Charkow*=Para.

Hagemeyer Trading Co.	Not specified.					= 8,960
Meyer & Brown	†25,600	.....	23,100	.....	.....	= 48,700
Hagemeyer & Brunn	33,600	4,480	22,400	.....	11,200	= 71,680

* Weak fine.
† Including Medium.

ARRIVALS AT THE PORT OF NEW YORK.

PLANTATIONS.

TO NEW YORK.

	Pounds.
February 13.—By the *Capto*=Singapore:	
Aldens' Successors, Limited	44,800
February 18.—By the *Vrendijk*=Batavia:	
J. T. Johnstone & Co	184,000
Meyer & Brown	69,400
March 4.—By the *Matoppo*=Singapore:	
J. T. Johnstone & Co	359,000
Rubber Trading Co	47,040
Meyer & Brown	38,100
Aldens' Successors, Limited	187,000
Fred. Stern & Co	385,280
March 11.—By the *City of Manchester*=East:	
J. T. Johnstone & Co	2,240

OVERLAND, FROM FAR EAST.

March 5.—Ex *Sachsen:*	
Rubber Trading Co	29,120
March 9.—Ex *Willis:*	
Rubber Trading Co	33,600
March 11.—Ex *Tjisondari:*	
Rubber Trading Co	8,900
March 11.—Ex *Persia Maru:*	
Rubber Trading Co	6,730
March 18.—Ex *Korea Maru:*	
Rubber Trading Co	2,240

PONTIANAK.

March 4.—By the *Matoppo*=Sinpagore:	
Aldens' Successors, Limited	24,500

AFRICANS.

March 12.—By the *Adriatic*=England:	
Fred. Stern & Co	2,240

GUAYULE.

February 19.—By rail=Laredo, Texas:	
Continental Rubber Co. of New York	46,800
February 20.—By rail=Laredo, Texas:	
Continental Rubber Co. of New York	47,800
March 4.—By rail=Laredo, Texas.	
Continental Rubber Co. of New York	46,500
March 14.—By rail=Laredo, Texas:	
Continental Rubber Co. of New York	48,300
March 18.—By rail=Eagle Pass, Texas:	
Continental Rubber Co. of New York	56,300
February 20.—By the *Almirante*=Galveston:	
Continental Rubber Co. of New York	52,500

CENTRALS.

February 6.—By the *Advance*=Bahia de Caraquez:	
Commercial Bank of Spanish America	21,030
February 7.—By the *Advance*=Manta:	
Commercial Bank of Spanish America	6,300
February 8.—By the *Jonesberg*=Puerto Mexico:	
Pell & Dumont	2,600

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.*

SEATTLE AND TACOMA.
PLANTATIONS.

[Figured 135 pounds net to the case.]

TO AKRON, OHIO.

	Pounds.	
†February 20.—By the *Mayachi Maru*=Singapore:		
Firestone Tire & Rubber Co.	336,825	
Goodyear Tire & Rubber Co.	1,328,670	
The B. F. Goodrich Co.	726,975	
Arthur Meyer & Co.	6,075	2,398,545
March 4.—By the *Tomiura Maru*=Singapore:		
Firestone Tire & Rubber Co.	83,025	
Goodyear Tire & Rubber Co.	81,540	
Goldman, Sachs & Co.	8,910	173,475
March 4.—By the *Arabien*=Singapore:		
Firestone Tire & Rubber Co.	227,745	
Goodyear Tire & Rubber Co.	137,160	364,905
§March 12.—By the *Alps Maru*=Muroran:		
Firestone Tire & Rubber Co.	59,805	

† Arrived at Tacoma.

TO NEW YORK.

†February 20.—By the *Mayachi Maru*=Singapore:		
F. R. Henderson & Co.	457,515	
Arnold & Zeiss	31,455	
United States Rubber Co.	400,140	
Robinson & Co.	135,810	
William H. Stiles	31,590	
W. R. Grace & Co.	10,125	
F. E. Childs & Co.	11,205	
L. Littlejohn & Co.	70,335	
Arthur Meyer & Co.	24,435	
East Asiatic Co.	32,670	
Charles T. Wilson Co., Inc.	82,080	
J. T. Johnstone & Co.	81,945	
Fred. Stern & Co.	116,505	
Rubber Trading Co.	14,850	
Aldens' Successors Limited	39,285	
Mexican Crude Rubber Co.	9,990	1,549,935
March 4.—By the *Tomiura Maru*=Singapore:		
Charles T. Wilson Co., Inc.	189,000	
Robinson & Co.	25,515	
Aldens' Successors, Limited	127,440	
Fred. Stern & Co.	12,960	
Van Siclen & Co.	7,155	
United States Rubber Co.	165,375	
Winter Sons & Co.	67,635	
W. R. Grace & Co.	8,100	
William H. Stiles	7,830	
Arthur Meyer & Co.	25,920	
J. T. Johnstone & Co.	163,485	
F. R. Henderson & Co.	67,500	
Edward Maurer & Co.	43,200	911,115
March 4.—By the *Arabien*=Singapore:		
East Asiatic Co.	9,315	
Robinson & Co.	110,755	
F. R. Henderson & Co.	172,125	
United States Rubber Co.	405,000	
L. Littlejohn & Co.	86,535	
Rubber Trading Co.	23,760	
Aldens' Successors, Limited	59,265	
Edward Maurer & Co.	30,105	
W. R. Grace & Co.	10,800	
Arnold & Zeiss	205,335	
Fred. Stern & Co.	136,485	
Kut & Valk	44,010	
Charles T. Wilson Co., Inc.	16,740	
J. T. Johnstone & Co.	218,430	
Raw Products Co.	70,065	
Arthur Meyer & Co.	22,680	
Poel & Kelly	91,530	
Frank B. Ross & Co.	33,750	1,746,685
March 9.—By the *Manila Maru*=Kobe:		
Arthur Meyer & Co.	2,970	
Winter Son & Co. (Para rubber)	3,840	6,810
§March 12.—By the *Alps Maru*=Muroran:		
Rubber Trading Co.	21,195	
W. R. Grace & Co.	14,175	
Aldens' Successors, Limited	10,935	46,305

	Pounds.	
March 16.—By the *Atsuta Maru*=Yokohama:		
Poel & Kelly	57,240	
Smith & Schipper	53,325	
F. R. Henderson & Co.	78,030	
William H. Stiles	26,730	
L. Littlejohn & Co.	75,600	
Robinson & Co.	50,760	
J. T. Johnstone & Co.	34,020	375,705

§ Arrived at Tacoma, overland.

TO SEATTLE, WASH.

†February 20.—By the *Mayachi Maru*=Singapore:		
The B. F. Goodrich Co.	227,205	
Fred. Stern & Co.	16,740	
L. Littlejohn & Co.	233,280	
Arnold & Zeiss	20,520	
W. R. Grace & Co.	42,930	
Aldens' Successors, Limited	121,365	
Balfour, Guthrie & Co.	50,355	
Meyer & Brown	8,100	
Arthur Meyer & Co.	8,505	
Charles T. Wilson Co., Inc.	4,455	
Goodyear Tire & Rubber Co.	95,445	
East Asiatic Co.	1,620	
J. T. Johnstone & Co.	9,990	
Robinson & Co.	6,885	847,395
March 4.—By the *Tomiura Maru*=Singapore:		
Goodyear Tire & Rubber Co.	4,455	
Arnold & Zeiss	26,055	
L. Littlejohn & Co.	287,280	
Fred. Stern & Co.	32,400	
F. R. Henderson & Co.	9,180	
East Asiatic Co.	90,585	
J. T. Johnstone & Co.	29,160	
W. R. Grace & Co.	11,340	
Michelin Tire Co.	26,460	516,915
†March 4.—By the *Arabien*=Singapore:		
F. R. Henderson & Co.	29,970	
L. Littlejohn & Co.	170,640	
Meyer & Brown	55,755	
Robinson & Co.	26,190	
Aldens' Successors, Limited	78,705	
W. R. Grace & Co.	8,100	
Fred. Stern & Co.	44,550	
East Asiatic Co.	131,625	
Goodyear Tire & Rubber Co.	102,870	
Arthur Meyer & Co.	4,725	
Poel & Kelly	35,910	
Raw Products Co.	12,555	
Balfour, Guthrie & Co.	101,250	
J. T. Johnstone & Co.	76,950	
Arnold & Zeiss	17,685	897,480
March 5.—By the *Senator*=Hongkong:		
¶J. T. Johnstone & Co.	48,330	
¶L. Littlejohn & Co.	12,150	
William H. Stiles	30,240	90,720
March 12.—By the *Alps Maru*=Muroran:		
Aldens' Successors, Limited	102,870	
Goodyear Tire & Rubber Co.	43,740	146,610
March 12.—By the *Suiza Maru*=Yokohama:		
L. Littlejohn & Co.		25,920
¶Shortshipments ex *Umatilla.*		
March 13.—By the *Horaisan Maru*=Singapore: (In transit, via Vancouver.)		
United States Rubber Co.	371,250	
W. R. Grace & Co.	83,970	
Winter Sons & Co.	16,740	
Goodyear Tire & Rubber Co.	172,800	644,760
March 16.—By the *Atsuta Maru*=Yokohama:		
Fred. Stern & Co.		46,710
March 18.—By the *Nankai Maru*=Kobe:		
Mitsui & Co., Limited	157,680	
L. Littlejohn & Co.	84,240	
J. T. Steebe & Co.	20,250	262,170

TO WATERTOWN, MASS.

†February 20.—By the *Mayachi Maru*=Singapore:	
Hood Rubber Co.	80,055
March 4.—By the *Tomiura Maru*=Singapore:	
Hood Rubber Co.	133,515

TO TORONTO, CANADA.

†February 20.—By the *Mayachi Maru*=Singapore:	
Gutta Percha & Rubber, Limited	18,900

* Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

TO VANCOUVER, BRITISH COLUMBIA.

	Pounds.	
†FEBRUARY 20.—By the *Mayachi Maru*=Singapore:		
Dunlop Tire & Rubber Co		42,120
MARCH 1.—By the *Harold Dollar*=Shanghai: (Arrived at Vancouver.)		
Haddin & Co	202,500	
Boston Insul. Wire & Cable Co.	4,860	207,360
MARCH 4.—By the *Arabien*=Singapore: (Arrived at Vancouver.)		
Charles T. Wilson Co., Inc	183,060	
Meyer & Brown	125,010	
United States Rubber Co	270,405	
Hagemeyer Trading Co	40,500	
F. R. Henderson & Co	91,530	710,505

PONTIANAK.

TO NEW YORK.

MARCH 4.—By the *Arabien*=Singapore:		
F. R. Henderson Co. (reboiled gutta)	12,000	
United Malaysian Rubber Co. (gutta jangkar)	19,250	
United Malaysian Rubber Co. (gutta jelutong, untreated)	194,750	
United Malaysian Rubber Co. (gutta siak)	60,500	286,500

PONTIANAK.

TO SEATTLE, WASH.

MARCH 4.—By the *Tomiura Maru*=Singapore:	
L. Littlejohn & Co. (gutta jelutong)	115,000
MARCH 4.—By the *Arabien*=Singapore:	
L. Littlejohn & Co. (gutta siak)	54,000

SAN FRANCISCO.*

[*Figured 135 pounds net to the case.*]

	Pounds.	
FEBRUARY 17.—By the *Tenyo Maru*=Hongkong:		
J. T. Johnstone & Co	106,380	
Goodyear Tire & Rubber Co	3,510	
Charles T. Wilson Co., Inc	19,305	
Arthur Meyer & Co	11,610	
Aldens' Successors, Limited	5,400	
Arnold & Zeiss	35,235	
Robinson & Co	3,375	
Rubber Trading Co	5,265	
Fred. Stern & Co	9,990	200,070
†FEBRUARY 21.—By the *Oranje*=Soerabaia:		
Rubber Trading Co	44,145	
Kemsley	33,480	
Rubber Association of America	386,775	
Poel & Kelly	27,405	
Edward Maurer & Co	68,445	
G. Amsinck & Co	181,710	
Equitable Trust Co	40,500	
Eugene Boissevain & Co	23,220	
Meyer & Brown	46,305	
W. R. Grace & Co	30,375	
J. T. Johnstone & Co	48,600	
L. Littlejohn & Co	51,570	982,530
FEBRUARY 23.—By the *China*=Hongkong:		
Arnold & Zeiss	50,220	
W. R. Grace & Co	94,635	
Edward Maurer & Co	53,730	
Peninsula Trading Co	41,985	
Winter Sons & Co	83,700	
F. R. Henderson & Co	79,245	403,515
§FEBRUARY 23.—By the *Nippon Maru*=Hongkong:		
J. T. Johnstone & Co	105,165	
Republic Rubber Co	22,950	
F. R. Henderson & Co	113,400	241,515
FEBRUARY 24.—By the *Yuki Maru*=Kobe:		
Raw Products Co	18,090	
L. Littlejohn & Co	156,195	
Meyer & Brown	1,620	
Fred. Stern & Co	11,745	
Edward Maurer & Co	83,160	270,810
FEBRUARY 26.—By the *Arakan*=Soerabaia:		
Savage Tire Co	7,560	
Goodyear Tire & Rubber Co	57,105	
Poel & Kelly	39,150	
Rubber Association of America	18,090	
Arnold & Zeiss	40,500	
Equitable Trust Co	71,820	234,225
FEBRUARY 27.—By the *Venezuela*=Manila:		
Aldens' Successors, Limited	31,050	
Goodyear Tire & Rubber Co	35,370	
Goldman, Sachs & Co	4,725	
Arnold & Zeiss	31,320	
Arthur Meyer & Co	13,095	
Robinson & Co	9,045	
Meyer & Brown	3,915	
Rubber Trading Co	89,910	
J. T. Johnstone & Co	25,920	
Fred. Stern & Co	8,640	
F. R. Henderson & Co	148,500	
L. Littlejohn & Co	8,370	
East Asiatic Co	405	410,265
MARCH 8.—By the *Shinyo Maru*=Hongkong:		
J. T. Johnstone & Co	99,360	
W. R. Grace & Co	7,560	106,920
(Shortshipped.)		
Charles T. Wilson Co., Inc	3,240	
Goodyear Tire & Rubber Co	270	
F. R. Henderson & Co	36,180	
Robinson & Co	6,750	
J. T. Johnstone & Co	1,080	47,520
MARCH 11.—By the *Koningin der Nederlanden*=Soerabaia:		
Rubber Association of America, Inc.	438,345	
Goodyear Tire & Rubber Co	269,865	
Rubber Trading Co	64,800	
Edward Maurer & Co	67,230	
L. Littlejohn & Co	141,075	
W. R. Grace & Co	135	
J. T. Johnstone & Co	29,025	
Meyer & Brown	32,400	
G. Amsinck & Co	13,635	
Raw Products Co	18,630	
Firestone Tire & Rubber Co	69,525	
Equitable Trust Co	20,250	
General Rubber Co	13,500	
Arnold & Zeiss	33,750	1,212,165
MARCH 16.—By the *Santa Cruz*=Colombo:		
F. R. Henderson & Co	7,965	
L. Littlejohn & Co	34,020	
East Asiatic Co	51,030	
Fred. Stern & Co	137,700	
United States Rubber Co	432,000	
Goodyear Tire & Rubber Co	931,500	
Curry & McPhillips	159,165	1,753,380

PONTIANAK.

FEBRUARY 21.—By the *Oranje*=Soerabaia:		
¶British Bank of South America, Limited (gutta percha)		120,000
MARCH 11.—By the *Koningin der Nederlanden*=Soerabaia:		
British Bank of South America, Limited (gutta percha)	74,000	
British Bank of South America, Limited (gutta jelutong)	36,250	110,250

¶268 cases shortshipped.

CRUDE RUBRER ARRIVALS AT PACIFIC COAST AS REPORTED.

PLANTATIONS.

FEBRUARY 21.—By the *Mayachi Maru*=Singapore:	
General Rubber Co	463,700
Fred. Stern & Co	392,000
Meyer & Brown	34,700
FEBRUARY 21.—By the *Venezuela*=Far East:	
Fred. Stern & Co	56,000
MARCH 2.—By the *Santa Cruz*=Colombo:	
Fred. Stern & Co	89,600
MARCH 3.—By the *Tomiura Maru*=Singapore:	
General Rubber Co	224,000
Fred. Stern & Co	113,120
MARCH 4.—By the *Arabien*=Singapore:	
General Rubber Co	876,000
Meyer & Brown	230,700
Fred. Stern & Co	1,008,000
MARCH 4.—By the *Empress of Asia*=Singapore:	
General Rubber Co	739,000
Meyer & Brown	44,800
MARCH 7.—By the *Shinyo Maru*=East:	
Meyer & Brown	4,500
MARCH 11.—By the *Koningin der Nederlanden*=Batavia:	
General Rubber Co	183,600
MARCH 13.—By the *Horaisan Maru*=Colombo:	
General Rubber Co	598,200
Meyer & Brown	582,400

NO DATES GIVEN.

	Pounds.
By the *Protesilaus:*	
Fred. Stern & Co	17,920
By the *Van Cloon:*	
Fred. Stern & Co	11,200
By the *Tjisondari:*	
Fred. Stern & Co	78,400
By the *Storviken:*	
Fred. Stern & Co	425,600
By the *Somedono Maru:*	
Fred. Stern & Co	201,600
By the *Columbia:*	
Fred. Stern & Co	22,400
By the *Siberia Maru:*	
Fred. Stern & Co	67,200
By the *Umatilla:*	
Fred. Stern & Co	22,400
By the *Nichiyo Maru:*	
Fred. Stern & Co	112,000
By the *Lyacon:*	
Fred. Stern & Co	224,000
By the *Kenkon Maru:*	
Hagemeyer Trading Co	13,440
By the *Sachsen:*	
Hagemeyer Trading Co	17,920

CUSTOM HOUSE STATISTICS.

PORT OF CHICAGO, ILLINOIS—FEBRUARY, 1918.

IMPORTS:	QUANTITY.	VALUE.
India rubber ....pounds	33,600	$23,200
Manufactures of india rubber	.....	1,921
Total	.....	$25,121

PORT OF THE DISTRICT OF MICHIGAN, MICH.—JANUARY, 1918.

IMPORTS:	QUANTITY.	VALUE.
Rubber scrap....pounds	437	$31
EXPORTS:		
India rubber....pounds	1,736	$1,178
Rubber scrap	26,973	1,653
Reclaimed rubber	1,828	256
India rubber boots....pairs	6,529	18,902
India rubber shoes....pairs	1	1
Automobile tires	.....	2,530
Other rubber tires	.....	80
Belting, hose and packing	.....	3,781
All other manufactures of india rubber	.....	11,007
Total	.....	$39,388

PORT OF NEW ORLEANS—FEBRUARY, 1918.

IMPORTS:	QUANTITY.	VALUE.
India rubber ....pounds	8,950	$2,718

PORT OF SAN FRANCISCO, CAL.—JANUARY, 1918.

IMPORTS:	QUANTITY.	VALUE.
India rubber....pounds	8,884,451	$5,063,735
Gutta jelutong	101,400	9,311
Rubber scrap	10,000	500
Manufactures of india rubber	.....	6
Total	.....	$5,073,552
EXPORTS:		
India rubber boots....pairs	190	$880
India rubber shoes....pairs	3,570	2,662
Automobile tires	.....	237,692
Other rubber tires	.....	21,758
Belting, hose and packing	.....	69,116
Druggists' sundries	.....	3,707
All other manufactures of india rubber	.....	31,479
Total	.....	$367,294

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	December, 1917.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.
Rubber and gutta percha crude caoutchouc or india rubber	691,347	$318,383
Rubber, recovered	315,742	53,014
Hard rubber, in sheets and rods	671	572
Rubber substitute	68,750	5,875
Rubber, powdered and rubber or gutta percha waste	165,883	14,587
Rubber thread, not covered	5,957	8,837
Totals	1,248,350	$401,268
Chicle	423,645	$165,808

* Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

† Out of 2,023 cases of rubber to be transshipped from the *Melchior Treub* to *Oranje*, 776 cases were shortshipped.

§ 282 cases shortshipped.

MANUFACTURED—*dutiable:*	General Tariff. VALUE.	Preferential Tariff. VALUE.
Boots and shoes	$22,336	$193
Belting	10,333	.....
Waterproof clothing	6,106	2,465
Hose, lined with rubber	5,603	.....
Mats and matting	201	.....
Packing	8,168	364
Tires of rubber for all vehicles	54,473	.....
Rubber cement and all manufactures of india rubbber and gutta percha —N. O. P.	55,115	9,214
Hard rubber, unfinished, in tubes, for fountain pens	367	.....
Webbing, over one inch wide	9,994	24
Totals	$172,696	$12,260

EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE.

	December, 1918.	
MANUFACTURED—	Produce of Canada. VALUE.	Reexports of Foreign Goods. VALUE.
Belting	$311	$400
Hose	18,830	10
Boots and shoes	316,921	181
Clothing	796	.....
Tires	27,278	6,343
Waste	2,262	.....
All other, N. O. P.	4,322	15,859
Totals	$370,720	$22,793
Chicle	$263,096	.....

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	January, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber:		
At—		
London	5,121,500	615,739
Liverpool	11,822,500	1,419,545
Totals	16,944,000	2,035,284
Waste and reclaimed rubber:		
At—		
London	9,700	100
Liverpool	67,800	778
Totals	77,500	878

EXPORTS.

Waste and reclaimed rubber:		
From—		
London	198,900	3,088
Liverpool	107,400	1,587
Totals	306,300	4,675

REEXPORTS.

Crude rubber:		
From—		
London	2,351,500	308,261
Liverpool	652,600	87,100
Totals	3,004,100	395,361
Waste and reclaimed rubber:		
From—		
Liverpool	22,300	676

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Year Ended December 31, 1917.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	175,661,100	23,794,635
Waste and reclaimed rubber	2,890,500	70,962
Gutta percha	8,055,376	1,111,578
Totals	186,606,976	24,977,175
MANUFACTURED—		
Apparel, waterproofed	.....	9,047
Boots and shoes..*doz. pairs*	133,436	245,971
Insulated wire	.....	10,041
Automobile tires and tubes	.....	1,161,989
Motorcycle tires and tubes	.....	79,722
Cycle tires and tubes	.....	73,178
Tires not specified	.....	8,477
Total	.....	1,588,425

EXPORTS OF DOMESTIC MERCHANDISE.

	Year Ended December 31, 1917.	
UNMANUFACTURED—	POUNDS.	£.
Waste and reclaimed rubber	16,206,000	551,712
MANUFACTURED—		
Apparel, waterproofed	.....	660,458
Boots and shoes..*doz. pairs*	103,463	114,893
Insulated wire	.....	182,069
Automobile tires and tubes	.....	1,107,093
Motorcycle tires and tubes	.....	136,899
Cycle tires and tubes	.....	338,303
Tires not specified	.....	130,883
Manufactures not specified	.....	1,639,628
Total	.....	4,310,226

EXPORTS—FOREIGN AND COLONIAL.

	Year Ended December 31, 1917.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	117,460,900	16,499,795
Waste and reclaimed rubber	555,700	21,058
Gutta percha	393,680	50,692
Totals	118,410,280	16,571,545
MANUFACTURED—		
Apparel, waterproofed	.....	532
Boots and shoes..*doz. pairs*	27,376	34,961
Insulated wire	.....	79,622
Automobile tires and tubes	.....	405,573
Motorcycle tires and tubes	.....	15,288
Cycle tires and tubes	.....	10,465
Tires not specified	.....	2,528
Total	.....	548,969

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	January, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	17,684,600	2,131,732
Waste and reclaimed rubber	78,800	903
Gutta percha	1,139,040	185,631
Totals	18,902,440	2,318,266
MANUFACTURED—		
Apparel, waterproofed	.....	63
Boots and shoes..*doz. pairs*	2,177	12,808
Insulated wire	.....	315
Automobile tires and tubes	.....	53,140
Motorcycle tires and tubes	.....	1,058
Cycle tires and tubes	.....	4,242
Totals	.....	71,626

EXPORTS.

	January, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Waste and reclaimed rubber	778,300	20,626
MANUFACTURED—		
Apparel, waterproofed	.....	50,780
Boots and shoes..*doz. pairs*	10,238	11,933
Insulated wire	.....	6,610
Automobile tires and tubes	.....	63,160
Motorcycle tires and tubes	.....	8,221
Cycle tires and tubes	.....	18,676
Tires not specified	.....	11,319
Other manufactures of india rubber	.....	138,059
Totals	.....	308,758

EXPORTS—FOREIGN AND COLONIAL.

	January, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	3,149,100	411,490
Waste and reclaimed	22,300	676
Gutta percha	4,032	882
Totals	3,175,432	413,048
MANUFACTURED—		
Apparel, waterproofed	.....	11
Boots and shoes..*doz. pairs*	23	97
Insulated wire	.....	25
Automobile tires and tubes	.....	9,666
Motorcycle tires and tubes	.....	12
Cycle tires and tubes	.....	98
Totals	.....	9,909

RUBBER STATISTICS FOR ITALY.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Eleven Months Ended November, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
From—		
Great Britain	2,419,780	.....
India and Ceylon	3,410,440	.....
Straits Settlements	1,497,320	.....
French West African colonies	463,540	.....
Belgian Congo	268,620	.....
Brazil	4,266,460	.....
Other countries	324,280	.....
Totals	12,650,440	51,751,800
Rubber scrap	1,994,080	906,400
MANUFACTURED—		
India rubber and gutta percha —threads:		
From—		
Great Britain	22,220	.....
United States	56,760	.....
Other countries	2,640	.....
Totals	81,620	742,000
India rubber and gutta percha —sheets:		
Cut sheets	3,740	29,750
Elastic fabric	7,040	16,000
Other kinds, including hard rubber	37,620	148,770
India rubber and gutta percha —tubes:		
From cut sheets	220	1,850
Elastic fabric	13,420	42,700
Other forms	1,320	4,800
Belting	99,440	361,600
Rubbered fabrics—pieces:		
For carding combs	91,740	427,425
Other forms:		
From—		
Great Britain	11,000	.....
United States	21,560	.....
Other countries	3,300	.....
Totals	35,860	211,900
Boots and shoes—*pairs:*		
From—		
France	6,046	.....
United States	23,499	.....
Other countries	172	.....
Totals	29,717	193,160
Elastic webbing:		
From—		
France	42,900	.....
Great Britain	11,880	.....
Other countries	5,720	.....
Totals	60,500	467,500
Clothing and articles for travel	1,720	19,200
Manufactures of india rubber and gutta percha— n. e. s.:	11,880	118,800
From cut sheets		
Elastic fabric:		
From—		
France	57,420	.....
Great Britain	164,560	.....
Other countries	18,260	.....
Totals	240,240	1,037,400
Tires and tubes:		
From—		
France	846,560	.....
Great Britain	425,260	.....
Other countries	27,060	.....
Totals	1,298,880	9,210,240

MANUFACTURED—	Eleven Months Ended November, 1917. POUNDS.	LIRE.
Other rubber manufactures:		
From—		
France	186,560	.....
Great Britain	384,780	.....
United States	486,200	.....
Other countries	1,100	.....
Totals	1,058,640	3,849,600
Total Imports	.....	69,540,895

EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—	Eleven Months Ended November, 1917. POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
To—		
Spain	340,560	.....
United States	597,740	.....
Totals	938,300	1,279,500
MANUFACTURED—		
India rubber and gutta percha —threads:		
To—		
France	17,820	.....
Great Britain	7,040	.....
Spain	12,760	.....
Switzerland	4,620	.....
Argentina	3,740	.....
Other countries	1,980	.....
Totals	47,960	414,200

MANUFACTURED—	Eleven Months Ended November, 1917. POUNDS.	LIRE.
India rubber and gutta percha —sheets:		
Cut sheets	1,320	10,200
Elastic fabric	6,820	18,600
Insulated wire	440	700
Other kinds, including hard rubber	18,260	70,550
India rubber and gutta percha —tubes:		
From cut sheet	1,320	11,400
Elastic fabric	61,600	182,000
Other forms	63,140	215,250
Belting	2,640	8,640
Rubbered fabric—pieces	41,800	190,000
Elastic webbing:		
To—		
France	5,060	.....
Greece	36,960	.....
Spain	20,680	.....
Switzerland	73,920	.....
Egypt	13,200	.....
Argentina	59,400	.....
Brazil	133,760	.....
Chile	14,740	.....
Cuba	14,300	.....
Other countries	37,180	.....
Totals	409,200	2,976,000
Clothing and articles for travel	7,480	78,200
Manufactures of india rubber and gutta percha —n. e. s.:		
From cut sheet:		
To—		
Great Britain	660	.....
Spain	2,860	.....
Argentina	7,700	.....

MANUFACTURED—	Eleven Months Ended November, 1917. POUNDS.	LIRE.
Uruguay	1,980	.....
Other countries	1,100	.....
Totals	14,300	130,000
Elastic fabric	30,140	123,300
Tires and tubes:		
To—		
France	701,800	.....
Great Britain	1,551,220	.....
Switzerland	2,420	.....
India and Ceylon	369,380	.....
Straits Settlements	337,700	.....
Australia	28,820	.....
Argentina	255,420	.....
Brazil	246,400	.....
Other countries	324,500	.....
Totals	3,817,660	17,960,355
Other rubber manufactures:		
To—		
France	42,680	.....
Great Britain	36,740	.....
Spain	7,480	.....
Switzerland	45,760	.....
Egypt	3,300	.....
Argentina	86,240	.....
Brazil	33,880	.....
Uruguay	15,620	.....
Other countries	33,000	.....
Totals	304,700	1,246,500
Total Exports	.....	24,915,395

The nominal value of a lira is $0.193.

THE MARKET FOR COTTON AND OTHER FABRICS.

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NEW YORK.

THE demand for American cotton from domestic and foreign consumers has continued during the past month and new high prices have been recorded for the season. March 1, middling spot cotton was 32.70 cents and rose to the 35-cent level on March 22, when the high record of 34 cents for futures was established. On March 26, middling spot closed at 34.40 cents, with May futures around 32.90 cents.

EGYPTIAN COTTON. The British and Egyptian Governments will jointly purchase the entire Egyptian cotton crop for the coming season, the price to be paid for the crop to be based on $42 per kantar for "fully good fair" Sakellarides. A control commission will be appointed and will commence its duties August 1, allowing no further export licenses after that date except for cotton purchased by the commission. Existing licenses will be canceled except for cotton held at port and sold for export prior to August 1.

SEA ISLAND COTTON. The southern markets have been generally quiet, but a better demand was noticed later in the month. The tendency to reduce acreage due to fear of the boll-weevil is marked and consumers are basing their calculations on a materially reduced crop. Prices are firm, with Floridas and Georgias ranging from 70 to 74 cents and Carolinas 70 to 73½ cents.

BURLAPS. There has been a considerable advance in prices of burlaps during the month. Prices in the primary markets are very much higher than the selling price in New York to-day, and also there is considerable difficulty in arranging freight space on shipments from India.

DRILLS, ENAMELING DUCK AND OSNABURGS. This period has been the most active for these materials and at sharply advancing rates of value. The demand has been exceedingly acute and continues substantially in excess of available supplies. Mills are under heavy forward engagement to the rubber trade.

MECHANICAL DUCK. The advance in this market is due to the price of raw cotton during the past month that reached the highest figures since the war. Stocks continue to be scarce and deliveries are hampered by restricted shipping conditions.

RAINCOAT FABRICS. Prices have advanced so rapidly during the month that buyers are alarmed, and are not inclined to buy at present quotations, which are over 100 per cent higher than April, 1917. Price fixing of cotton and cotton goods is the subject which is now interesting the trade, and until this is definitely settled there will not be much activity in cotton goods.

TIRE FABRICS. Business has been fairly active in all tire fabric materials and prices continue to be firm and unchanged. The purchase of the Egyptian crop by the British Government and the almost certain reduction of the new Sea Island crop will result in a more extended use of American cotton tire fabrics.

NEW YORK QUOTATIONS.

MARCH 27, 1918

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:		
Wamsutta, S. A. I. L. No. 1, 40-inch *yard*	*$0.57	@
No. 4, 38½-inch	*.50	@
for gas masks	*.45	@
ASBESTOS CLOTH:		
Brake lining, 2¼ lbs. sq. yd., brass or copper insertion *lb.*	.77	@
2¼ lbs. sq. yd., brass or copper insertion *lb.*	.80	@
BURLAPS:		None
32— 7½-ounce *100 yards*	18.75	@
40— 7½-ounce	19.00	@
40— 8-ounce	23.00	@
40—10-ounce	21.75	@
40—10½-ounce	21.25	@
45— 7½-ounce	21.50	@
45— 8-ounce	*24.75	@
45— 9½-ounce	*25.00	@
48—10-ounce		
DRILLS:		
38-inch 2.00-yard *yard*	.35	@
40-inch 2.47-yard	.29	@
52-inch 1.90-yard	*.29	@
52-inch 1.95-yard	*.28½	@
60-inch 1.52-yard	*.37	@
DUCK:		
CARRIAGE CLOTH:		
38-inch 2.00-yard enameling duck *yard*	.36	@
38-inch 1.74-yard	.41	@
72-inch 16.66-ounce	.70	@
72-inch 17-21-ounce	*.64	@

MECHANICAL:		
Hose ..... *pound*	*.70 @	.75
Belting	*.70 @	.75
HOLLANDS, 40-INCH:		
Acme ..... *yard*	*.19½ @	
Endurance ..... *yard*	*.22 @	
Penn ..... *yard*	*.24 @	
OSNABURGS:		
40-inch 2.35-yard ..... *yard*	.28½ @	
40-inch 2.48-yard	.28 @	
37½-inch 2.42-yard	.28¼ @	
RAINCOAT FABRICS:		
COTTON:		
Bombazine 64 x 60 water repellent ..... *yard*	.21 @	
60 x 48 not water repellent	.18¼ @	
Cashmeres, cotton and wool, 36-inch	.60 @	
Twills 64 x 72	.22 @	.25
64 x 102	.25 @	.30
Twill, mercerized, 36-inch	.29 @	
Tweed	.35 @	.40
Tweed, printed	.20 @	.22
Plaids 60 x 48	.19 @	
56 x 44	.18¼ @	
Repp	.25 @	.32
Surface prints 60 x 48	.18¾ @	
64 x 60	.21¼ @	
IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:		
63-inch, 3¼ to 7½ ounces ..... *yard*	.85 @	2.25
36-inch, 2¾ to 5 ounces	.55 @	1.30
IMPORTED PLAID LINING (UNION AND COTTON):		
63-inch, 2 to 4 ounces ..... *yard*	.65 @	1.25
36-inch, 2 to 4 ounces	.45 @	.95
DOMESTIC WORSTED FABRICS:		
36-inch, 4½ to 8 ounces ..... *yard*	.47½ @	1.25
DOMESTIC WOVEN PLAIN LININGS (COTTON):		
36-inch, 3¼ to 5 ounces ..... *yard*	.16 @	.30
SHEETINGS:		
40-inch 2.35-yard ..... *yard*	.28½ @	
40-inch 2.50-yard	.27½ @	
40-inch 2.70-yard	.24½ @	
40-inch 2.85-yard	.23 @	
40-inch 3.15-yard	.19½ @	
JACKET:		
Delaware ..... *yard*	*.20½ @	
Schuylkill ..... *yard*	*.23¼ @	
SILKS:		
Canton, 38-inch ..... *yard*	.30 @	
Schappes, 36-inch	.52½ @	
STOCKINETTES:		
COTTON, 52-INCH:		
D—14-ounce ..... *yard*	*.85 @	.90
E—11½-ounce	*.60 @	.65
F—14-ounce	*.85 @	.90
G— 8-ounce	*.75 @	.80
H—11-ounce	*.70 @	.85
I— 9-ounce	*.60 @	.65
Knitaback ..... *pound*	*1.60 @	1.65
WOOL, 52-INCH:		
A—14-ounce ..... *yard*	*1.75 @	
B—14-ounce	*2.25 @	
C—14-ounce	*2.50 @	
TIRE FABRICS:		
17¼-ounce Sea Island, combed ..... *square yard*	1.75 @	
17¼-ounce Egyptian, combed	1.30 @	
17¼-ounce Egyptian, carded	1.20 @	
17¼-ounce Peelers, combed	1.10 @	
17¼-ounce Peelers, carded	.90 @	

*Nominal.

SEA ISLAND COTTON CROP MOVEMENT.

FROM AUGUST 1, 1917, TO MARCH 1, 1918.

	Receipts. 1917-18.	1916-17.
Stock on hand, August 1, 1917— Savannah, 1,043; Charleston, 1 ..... *bales*	1,044	2,508
Received at Savannah (gross)	23,068	42,214
Received at Charleston	6,655	3,326
Received at Jacksonville	20,915	34,748
Received at Brunswick	.....	.....
Totals	51,682	82,796
Less exports	¹34,569	77,246
Stock March 1, 1918— Savannah, 14,636; Charleston, 2,477	17,113	5,550
Crop in sight at all ports to date	50,468	79,993

EXPORTS

From—	To Great Britain.	Continent.	North. Mills.	South. Mills.	Charleston.	Burned.	Total.
Savannah..*bales*	28	142	7,226	2,064	15	.....	9,475
Charleston	.....	.....	4,179	.....	.....	.....	4,179
Jacksonville	.....	.....	20,915	.....	.....	.....	20,915
Totals	28	142	32,320	2,064	15	.....	¹34,569
1916-17	1,565	120	70,327	5,120	.....	114	77,246
	†1,537	‡22	†38,007	†3,056	‡15	†114	†42,677

¹In addition to the exports shown above there has been a very considerable movement from interior points to Southern mills and to Northern mills via Norfolk, but at present it is not possible to form a reliable estimate of the size of this movement.
†Decrease. ‡Increase.
(Compiled by John Malloch & Co., Savannah, Georgia.)

EGYPTIAN COTTON CROP MOVEMENT.

FROM AUGUST 1, 1917, TO JANUARY 30, 1918.

To—	1917-1918.	1916-1917.	1915-1916.
Liverpool ..... *bales*	120,198	139,996	152,817
Manchester	83,799	100,563	81,161
Other United Kingdom ports	19,542	.....	.....
Total shipments to Great Britain	223,539	240,559	233,978
To—			
France 10,309	11,793	19,449	29,973
Spain 1,484			
Italy	17,946	30,552	25,556
Russia	.....	20,938	29,839
Greece	500	65	50
Total shipments to Continent	30,239	71,004	85,418

TIRE FABRICS

JENCKES SPINNING COMPANY

PAWTUCKET RHODE ISLAND

To—			
United States	13,530	82,213	124,811
Japan	12,464	8,055	14,335
Total shipments to all parts	279,772	401,831	458,542
Total crop (interior gross weight), *cantars**		5,126,199	4,726,518

*Cantar equals 98 pounds.
(*Compiled by Davies, Benachi & Co., Liverpool.*)

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

WHILE transportation matters have improved considerably during the last month, the general freight situation has not favored the prompt movement of rubber scrap material. Many deliveries on old orders were undoubtedly made, but new business was, as a rule, limited to small lots for immediate consumption. There was a fair business reported among dealers and to consumers, but the turnover was not great, as in most cases it represented emergency orders. The general tendency of the market has been downward and several grades have declined since last month. A fair amount of incoming stocks was reported that failed in market influence, due to the belief that accumulations will be less this year than usual.

BOOTS AND SHOES. There has been small interest shown in this material and prices have declined about one-half cent during the month.

INNER TUBES. These show but little change and have been entirely neglected, due to the quiet crude rubber market.

MECHANICALS. The demand has been very small throughout the entire list, with prices firm and unchanged.

TIRES. The movement in tires has been limited to trading between dealers and occasional orders from the mills. Prices were firm and more or less nominal in some grades.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

MARCH 27, 1918.

Prices subject to change without notice.

BOOTS AND SHOES.			
Arctic tops	lb.	$0.01½ @	.01¾
Boots and shoes	lb.	.08¾ @	.09
Trimmed arctics	lb.	.07¼ @	.07½
Untrimmed arctics	lb.	.06¼ @	.06½
HARD RUBBER.			
Battery jars, black compound	lb.	*.02½ @	
No. 1, bright fracture	lb.	.27 @	.28
INNER TUBES.			
No. 1, old packing	lb.	.22 @	.23½
new packing	lb.	*.25 @	.26
No. 2	lb.	.11½ @	.12
Red	lb.	.11½ @	.12
MECHANICALS.			
Black scrap, mixed, No. 1	lb.	.05½ @	
No. 2	lb.	.04 @	
Car springs	lb.	.05 @	
Heels	lb.	.04 @	
Horse-shoe pads	lb.	.04¼ @	
Insulated wire stripping, free from fiber	lb.	.04 @	
Matting	lb.	.01½ @	
Packing	lb.	.01½ @	
Red scrap, No. 1	lb.	.09½ @	.10
No. 2	lb.	.07 @	.07½
White scrap, No. 1	lb.	.13½ @	
No. 2	lb.	.09 @	
TIRES.			
Pneumatic—			
Auto peelings, No. 1	lb.	*.10 @	
No. 2	lb.	*.07½ @	
Bicycle	lb.	.05½ @	
Standard white auto	lb.	.06 @	
Standard mixed auto	lb.	.05½ @	
Stripped, unguaranteed	lb.	.04½ @	
White, G. & G.	lb.	*.06¼ @	
M. & W. and U. S.	lb.	.06¼ @	
Solid—			
Carriage	lb.	.06 @	
Irony	lb.	.02 @	
Truck	lb.	.06½ @	

*Nominal.

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

BASE metal markets have been quiet and featureless during the past month, with prices practically unchanged.

The market tendency of rubber chemicals and ingredients is upward, due to the practical impossibility of getting permits for carload shipments into the city. This is particularly true of barytes, the spot supply both for the finest uniform floated and off-colored being practically nil. The best quality will sell as high as $35 per ton and the off-colored at $25 per ton on spot. Aluminum flake advances in price, April 1, to $26 per ton carload lots at the mills. Lithopone has advanced, both for spot lots and shipments from the mills, carload shipments being quoted at 7 cents and spot lots at 7¼ cents to 7½ cents per pound. The most unusual advance in price during the present month has been that occurring on carnauba waxes of all kinds. The advance has been 25 cents to 30 cents per pound within the last four weeks. Only nominal supplies exist. Lime products, particularly lime flour, have advanced in price due to the higher cost of labor, fuel and containers and the virtual impossibility of getting sufficient labor to work in the kilns. Gilsonite is very scarce. Spot lots bring as high as $55 to $60 per ton. There should be a good demand for most of the earths, clays and fillers, due to short supplies and the fact that it is difficult to get the consent of the carriers and the Freight Traffic Committee of North Atlantic ports to grant permits for shipments to New York.

NEW YORK QUOTATIONS.

MARCH 27, 1918.

Subject to change without notice.

ACCELERATORS, ORGANIC.			
Accelerene	lb.	*$2.62 @	
Accelemal (100 pound drums)	lb.	.80 @	
Aldehyde ammonia (crystals)	bbl.	1.10 @	
Aniline oil	lb.	.26 @	.27
Annex	lb.	.75 @	
Duplex	lb.	1.00 @	
Excellerex	lb.	.85 @	
Hexamethylene tetramine (powdered)	lb.	1.15 @	
Paraphenylenediamine	lb.	*2.75 @	
Tensilite	lb.	.70 @	
Thiocarbanilide	lb.	*.50 @	
Velocite	lb.	.60 @	
Vitaminex	lb.	.75 @	
ACCELERATORS, INORGANIC.			
Lead, dry red	lb.	.10 @	
sublimed blue	lb.	.08½ @	
sublimed white	lb.	.08½ @	
white, basic carbonate	lb.	.09 @	
white, basic sulphate	lb.	.08½ @	
Lime, flour	lb.	.01½ @	
Litharge, domestic	lb.	.09½ @	.09¾
English	lb.	.12 @	
sublimed	lb.	.09¾ @	
Magnesium, carbonate	lb.	.09¾ @	.12½
calcined, heavy	lb.	.10½ @	
light	lb.	.70 @	
Magnesium oxide	lb.	.07¼ @	
Magnesite, calcined, powdered	ton	40.00 @	65.00
ACIDS.			
Acetic, 28 per cent (bbls.)	lb.	.06 @	.06½
Glacial, 99 per cent (carboys)	lb.	.38 @	
Cresylic, 97-99 per cent, straw color	gal.	1.10 @	
95 per cent, dark	gal.	1.00 @	
Muriatic, 20 degrees	lb.	.02½ @	.02¾
Nitric, 40 degrees	lb.	.08½ @	.09
Sulphuric, 66 degrees	lb.	.02¼ @	.02½
ALKALIES.			
Caustic soda, 76 per cent, ground	lb.	.06½ @	.07
Soda ash, light, 58 per cent in bags	bbl.	2.70 @	2.80
COLORS.			
Black:			
Bone, powdered	lb.	*.08 @	
granulated	lb.	*.10 @	
Carbon gas (cases)	lb.	.24 @	
Ivory black	lb.	.16 @	.30
Lamp black	lb.	.12 @	.25
Oil soluble aniline	lb.	1.25 @	
Rubber black	lb.	.06 @	

Blue:			
Cobalt	lb.	.25 @	.35
Prussian	lb.	.70 @	.90
Ultramarine	lb.	.18 @	.50
Brown:			
Iron oxide	lb.	.02 @	.04
Ochre, domestic	lb.	.03 @	.04
imported	lb.	.05 @	.07
Sienna	lb.	.04½ @	.12
Umber	lb.	.05 @	.06
Green:			
Chrome tile	lb.	.12½ @	
Oxide of chromium (casks)	lb.	.85 @	
India rubber	lb.	.75 @	
Red:			
Antimony, crimson, sulphuret of (casks)	lb.	.40 @	
crimson, "Mephisto" (casks)	lb.	.50 @	
Antimony, golden, sulphuret of	lb.	.28 @	.30
golden, "Mephisto" (casks)	lb.	.26 @	
golden, sulphuret, States brand, 16-17%	lb.	*.28 @	
red sulphuret, States brand	lb.	.25 @	
vermilion sulphuret	lb.	.55 @	.65
Arsenic, red sulphide	lb.	.42 @	.45
Indian, reduced grades	lb.	.04 @	.08
pure bright	lb.	.14 @	
Iron oxide, reduced grades	lb.	.04 @	.08
pure bright	lb.	.11 @	.14
Oil soluble aniline, red	lb.	2.50 @	3.00
orange	lb.	2.50 @	
Oxymony	lb.	.15 @	
Venetian	lb.	.02½ @	.04
Vermilion, English, pale, medium, dark	lb.	1.90 @	
White:			
Lithopone, imported	lb.	.08 @	.08½
domestic	lb.	.06½ @	.07½
Ponolith	lb.	None	
Rubber makers' white	lb.	.07 @	.07½
Zinc oxide, Horsehead (less carload, f. o. b. factory):			
"XX red"	lb.	.10½ @	
"Special"	lb.	.11 @	
French process, red seal	lb.	.13¼ @	
green seal	lb.	.13¾ @	
white seal	lb.	.14¼ @	
Zinc sulphide, pure	lb.	None	
Yellow:			
Cadmium, tri-sulphate	lb.	*2.68 @	
sulphide	lb.	2.00 @	
Chrome, light and medium	lb.	.24 @	.25
India rubber	lb.	1.00 @	
Ochre	lb.	.04½ @	.05½
Oil soluble aniline	lb.	2.50 @	

COMPOUNDING INGREDIENTS.

Aluminum flake (carloads, bbls., f. o. b. factory)	ton	26.00 @	
Aluminum oxide	lb.	.18 @	
Ammonia carbonate, powdered	lb.	.11½ @	
lumps	lb.	None	
Asbestine (bags)	ton	22.00 @	25.00
Asbestos (bags)	ton	30.00 @	
Barium, carbonate, precipitated	ton	*60.00 @	
sulphide, precipitated	lb.	*.07 @	
Barytes, pure white	ton	33.00 @	35.00
off color	ton	25.00 @	
uniform floated (f. o. b. factory)	ton	33.00 @	35.00
Basofor	ton	90.00 @	100.00
Blanc fixe	lb.	.04½ @	.05
Bone ash	lb.	*.06 @	
Chalk, precipitated, extra light	lb.	*.05 @	.05½
precipitated, heavy	lb.	*.04 @	.04½
China clay, English kiln dried	lb.	.04 @	
Cotton linters, clean mill run	lb.	*.06 @	
Graphite, flake (400 pound bbl.)	lb.	.15 @	.18
amorphous	lb.	.06 @	
Ground glass FF, (bbls.)	lb.	*.02¾ @	
Infusorial earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Mica, powdered	lb.	.04¼ @	.05½
Plaster of Paris	bbl.	2.00 @	3.00
Pumice stone, powdered (bbl.)	lb.	.03 @	.04
Rotten stone, powdered	lb.	.01½ @	01¾
Silex (silica)	ton	27.50 @	35.00
Soapstone, powdered	ton	20.00 @	23.00
Starch, powdered corn (carload, bbls.)	cwt.	5.27 @	
(carload, bags)	cwt.	5.14 @	
Talc, American	ton	15.00 @	22.00
French	ton	*28.00 @	
Tripoli earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Tyre-lith	ton	*85.00 @	
Whiting, Alba	cwt.	.90 @	1.10
commercial	cwt.	1.25 @	1.30
gilders	cwt.	1.30 @	1.40
Paris, white, American	cwt.	1.50 @	1.60
English cliffstone	cwt.	1.75 @	2.00
Wood pulp XXX	ton	*35.00 @	

MINERAL RUBBER.

Gilsonite	ton	55.00 @	
Genasco (carloads)	ton	55.00 @	
M. R.	ton	65.00 @	
M. R. X.	ton	100.00 @	
Liquid rubber	lb.	*.12½ @	
Pioneer	ton	*50.00 @	
Richmond Brand	ton	*70.00 @	
No. 64 Brand	ton	*50.00 @	
Refined Elaterite	lb.	*.05 @	
Raven M. R.	lb.	*.02½ @	

OILS.

Corn, refined Argo (carloads)	cwt.	21.47 @	
Linseed, raw (carloads)	gal.	1.50 @	
Palm	lb.	.30 @	.34
Paraffin	gal.	*.27 @	
Pine, steam distilled	gal.	.43 @	
Pine tar	gal.	.30 @	
Rapeseed, blown	gal.	1.75 @	1.80
Rosin	gal.	.47 @	
Tar (casks)	gal.	.27 @	.34
Glycerine (C. P. drums)	lb.	.72 @	.77
Petrolatum	lb.	.06 @	.14
Petroleum grease	lb.	*.05 @	

SOLVENTS.

Acetone (drums)	lb.	None	
Benzol, 90 per cent	gal.	.45 @	
Beta-naphthol, resublimed	lb.	1.10 @	
ordinary grade	lb.	.75 @	.80
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	*.25 @	
No. 1001 (f. o. b. Wyandotte)	lb.	*.32 @	
Naphtha, motor gasoline (steel bbls.)	gal.	.24 @	
73 @ 76 degrees (steel bbls.)	gal.	.33 @	
68 @ 70 degrees (steel bbls.)	gal.	.28 @	
V. M. & P. (steel bbls.)	gal.	.23 @	
Toluol, pure	gal.	None	
Turpentine, spirits	gal.	.44 @	
wood	gal.	.39 @	
Venice	lb.	.10 @	

SUBSTITUTES.

Black	lb.	.12 @	.18½
White	lb.	.13½ @	.25
Brown	lb.	.19 @	.24
Brown factice	lb.	.09 @	.23
White factice	lb.	.13 @	.25
Paragol soft and medium (carloads)	cwt.	17.71 @	
hard	cwt.	17.21 @	
Rubhide	lb.	*.38 @	

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.07½ @	
tetrachloride (drum)	lb.	.17 @	.18
Lead, black hyposulphite (Black Hypo)	lb.	None	
Orange mineral, domestic	lb.	.13 @	
Sulphur chloride (drums)	lb.	.06½ @	.08
Sulphur, flour, velvet brand (carloads)	cwt.	3.95 @	
pure soft	cwt.	3.95 @	

(See also Colors—Antimony)

WAXES, RESINS, PITCHES AND ADHESIVES.

Cantella gum	lb.	.43 @	
Glue, high grade	lb.	.35 @	.45
medium	lb.	.30 @	.35
low grade	lb.	.23 @	.27
Pine tar, retort	bbl.	13.00 @	
kiln	gal.	.24 @	
Pitch, Burgundy	lb.	.04½ @	
coal tar	lb.	.01 @	
pine tar	lb.	.02 @	
Resin, Pontianak, refined	lb.	None	
granulated	lb.	None	
fused	lb.	None	
Rosin, K	bbl.	7.35 @	
Shellac, fine orange	lb.	.75 @	
Tar, coal	bbl.	*4.25 @	
Wax, beeswax, white	lb.	.67 @	.68
ceresin, white	lb.	.22 @	.23
carnauba	lb.	.75 @	.85
ozokerite, black	lb.	.58 @	
green	lb.	.60 @	
montan	lb.	None	
substitute	lb.	.28 @	.30
paraffin, crude 118/120 m. p. (cases)	lb.	.10½ @	
124/126 m. p. (cases)	lb.	.09½ @	
refined 128/130 m. p. (cases)	lb.	.14½ @	
135/137 m. p. (cases)	lb.	.15¼ @	.16

*Nominal.

NETTLE FIBER FABRIC.

The shortage of cotton brought about by the war in several European countries has prompted scientific investigation for possible substitutes. Experiments in Germany, Austria and Denmark have shown that the fiber of the common stinging nettle may be used in the manufacture of various fabrics. Thus in Denmark, it has been found possible to make from this fiber, which has previously undergone treatment similar to that of flax, fine rope, strong string, coarse linen, sail cloth, sacking and binder twine. Moreover, sheets, cycle tire covers and fine material suitable for clothing can also be made, but lack of necessary machinery has so far prevented production.

ARMY AND NAVY AWARDS.

NAVY SUPPLY AWARDS.

THE following awards have been made during the past month for furnishing navy supplies:

PACKING.—160,000 pounds high pressure spiral rod, $168,000; 20,000 pounds high pressure spiral rod, $21,800; total, $189,800, Anchor Packing Co.

RUBBER HOSE.—500 feet, $386.50, Goodyear Tire & Rubber Co.

RUBBER PUMP VALVES.—$6,245.20, Empire Rubber & Tire Co., and $1,852.50, Manhattan Rubber Manufacturing Co.

SQUILGEES.—50,000, without handles, $27,500, Federal Rubber Co.

SUCTION HOSE.—1,000 feet, $1,210, Hamilton Rubber Manufacturing Co.

PANAMA CANAL AWARD

The following award has been made during the past month by the general purchasing officer of the Panama Canal:

RUBBER RINGS.—$64.80, Pennsylvania Rubber Co.

ARMY MEDICAL SUPPLIES.

The following awards have been made during the past month by the surgeon general of the Army:

FABRIC.—10,000 yards rubberized facepiece, $9,000; 5,000 yards rubberized band, $2,500; total, $11,500, C. Kenyon Manufacturing Co., Inc., Brooklyn, New York.

HAND ATOMIZERS.—1,000, $820, De Vilbiss Manufacturing Co., New York City.

HOSPITAL SLIPPERS.—40,000 pairs, $32,000, United States Rubber Co., New York City.

HOT WATER BAGS.—1,000, 2-quart, $691.67, United States Rubber Co., New York City. 500, $335, Parker, Stearns & Co., Inc., New York City.

LEAD RUBBER APRONS.—75, $375, Victor Electric Corp., New York City.

NOSE PADS.—1,500,000, $24,000, Pennsylvania Rubber Co., Jeannette, Pennsylvania. 75,000, $10,500, Continental Rubber Works, Erie, Pennsylvania.

RUBBER CUSHIONS.—500, $600, Hodgman Rubber Co., New York City.

RUBBER EYEPIECES.—600,000 washers, $4,052.40, United States Rubber Co., New York City.

RUBBER GLOVES.—7,500 pairs surgeons' gloves, $2,571, Henry Livezy, New York City. 75 pairs protection gloves, without gauntlet, lead rubber, $307.50; 75 pairs protection gloves, with gauntlet, $352.50; total, $660.25, Victor Electric Corp., New York City.

RUBBER ICE BAGS.—1,000, $700, Parker, Stearns & Co., Inc., New York City.

RUBBER MOUTHPIECES.—2,565,000 washers, $8,977.50, Continental Rubber Works, Erie, Pennsylvania.

RUBBER TUBING.—14,026 yards, $1,268.41; 10,000 yards, $904.40; total, $2,172.81, Hodgman Rubber Co., Tuckahoe, New York. 2,000 yards, pure gum, $226.67, Hodgman Rubber Co., New York City.

TOURNIQUETS AND BANDAGES.—1,000, $770, Parker, Stearns & Co., Inc., New York City.

VALVES.—500,000 check valves, $9,650; 350,000 flutter valves, $41,020; total, $50,670, United States Rubber Co., New York City. 200,000 flutter valves, $13,500, The B. F. Goodrich Co., Akron, Ohio. 60,000 special, $9,000; 100,000 flutter valves, $12,000; 90,000 flutter valves, $10,800; total, $31,800, Goodyear Tire & Rubber Co., Akron, Ohio.

WATERPROOFING DUCK.—300,000 yards Army duck, 30¼ inch wide, $16,500, Eastern Finishing Works, Kenyon, Rhode Island.

GENERAL ENGINEER DEPOT AWARD.

The following award has been made by the purchasing officer, general engineer depot, United States Army, Washington, District of Columbia:

FRICTION TAPE.—40,000 pounds, 28.275c., Boston Woven Hose & Rubber Co., Boston, Massachusetts.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(383.) An inquiry is made for the names of dealers in newseed oil.

(384.) A reader wishes to know where he may obtain seeds of the *Castilloa elastica.*

(385.) A reader inquires whether rubber manufacturers buy guayule shrub in order to extract the rubber content or whether guayule rubber is prepared only by specialists.

(386.) An inquiry has been received as to where books may be obtained which treat of the subject of manufacturing balata belting.

(387.) A correspondent wishes to know whether "Salvadore" is used in rubber compounding.

(388.) A subscriber inquires where rubber rolls may be engraved.

(389.) Inquiry is made by a manufacturer for alpha-naphthylamine, benzidine base, para-phenetidine, and amide-phenetol.

(390.) A correspondent asks for the name of a manufacturer of solvent recovery apparatus.

(391.) A manufacturer inquires where a gas mask can be obtained, to be worn by workers to neutralize the effect of the fumes of commercial carbon bisulphide.

(392.) An inquirer asks for booklets or information on the manufacture of rubber goods and on rubber vulcanizing.

(393.) A manufacturer asks for the name of a concern which builds machinery for the manufacture of narrow cotton webbing.

(394.) An inquiry has been received asking where 63-inch imported plaid linings (union and cotton) may be obtained.

(395.) A subscriber requests information as to where he may purchase stencils for marking brands and sizes on inner tubes.

(396.) A correspondent asks for the address of a firm manufacturing rubber-lined fire hose.

(397.) A manufacturer has written for information that will lead to obtaining samples of ocotillo gum, with prices.

(398.) A subscriber inquires for the addresses of makers of aprons used on mixing mills.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Reserved addresses may be obtained from the Bureau of Foreign and Domestic Commerce, or its district or cooperative offices. Request for each opportunity should be on a separate sheet, and state opportunity number.

(26,506.) An agency is desired by a man in Argentina for the sale of waterproof cloths, raincoats, rubber goods, etc.

(26,571.) A man in Australia desires to purchase or secure an agency for the sale of new toys, novelties and fountain pens.

(26,579.) An agency is sought by a man in Italy for the sale of garters and rubber goods.

(26,629.) A business man in Greece wishes to be placed in touch with manufacturers of hose, rubber and balata belting, and carriage tires.

(26,634.) An agency is desired in France for the sale of elastic webs and cords.

(26,635.) A company in Switzerland wishes to purchase or secure an agency for the sale of cables and insulated wire.

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